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AMERICAN GRAPE VARIETIES

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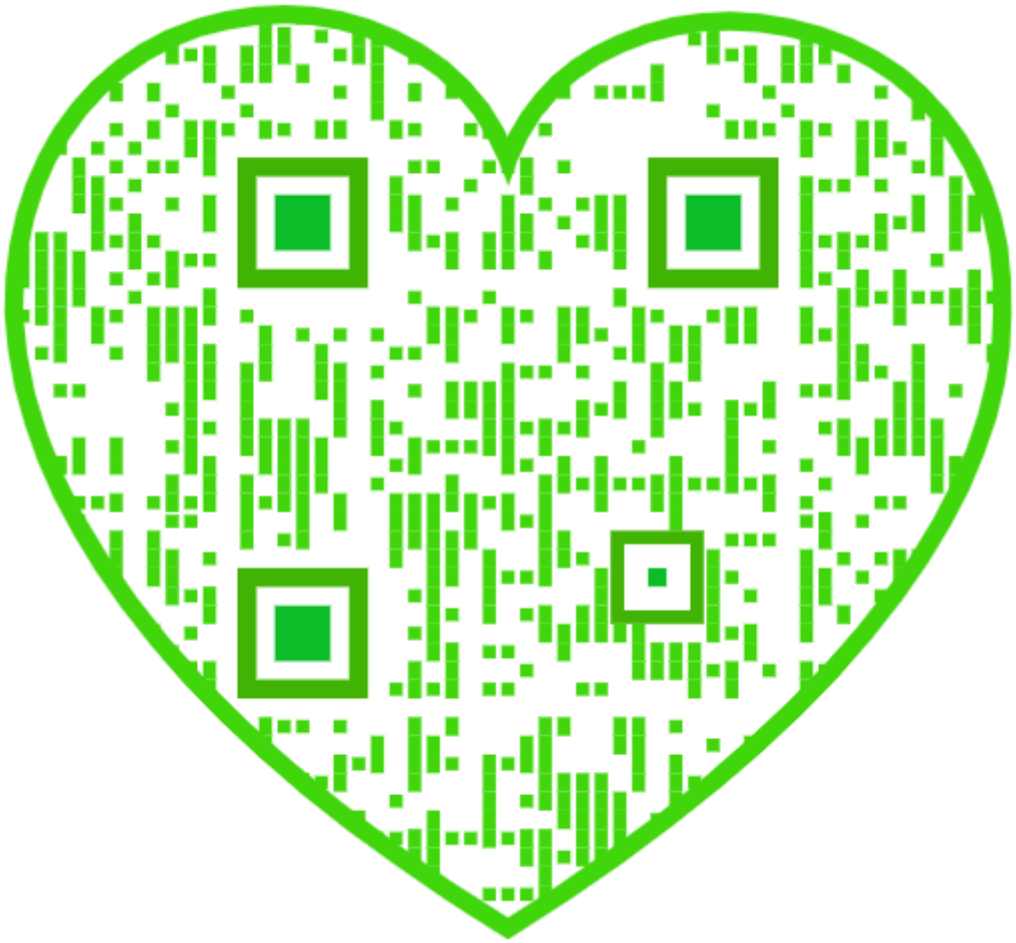
INTRODUCTION

The principal varieties of "bunch" or euvitis grapes that have been developed in the United States either from species native to this country or through hybridization of such species with varieties of *Vitis vinifera* L., the grape of Europe, Asia, and Africa, are described and evaluated in this circular. These so-called American grapes constitute practically the only varieties grown in the United States east of the Rocky Mountains except in the southeastern part of the country. The muscadine varieties, grown in the Coastal Plain region from southern Virginia to Texas, constitute a distinct type of grape and are not included in this circular.[1] The grape industry in California is based almost entirely on *Vitis vinifera* varieties introduced from the Old World. These varieties also represent a portion of the industry in other States west of the Rocky Mountains. The varieties described here, however, constitute those available for production throughout the remainder of the United States.

ATTEMPTS TO GROW VINIFERA VARIETIES IN EASTERN UNITED STATES

Grape growing in Asia, Africa, and Europe dates from before the dawn of recorded history. Grape growing and wine making were important industries in southern and central Europe, and many fine varieties of grapes were selected and propagated there, long before America was settled. When the early English, French, and Dutch settlers reached North America they were impressed with the great abundance of wild grapes, for in this country the grape flourishes as a native plant to a greater degree than anywhere else. They visioned the eastern part of North America as a grape-grower's paradise and imported and attempted to establish the varieties grown in Europe. From the earliest colonial days until early in the nineteenth century, practically all effort was directed toward acclimatizing the grape of Europe. Hundreds of attempts were made to establish vineyards,

[1] For a discussion of muscadine grapes, see Farmers' Bulletin No. 1785.



and thousands of acres of grapes were planted at various points from Canada to the Gulf of Mexico. Experienced German and French vineyardists were brought to the new country, and shipment after shipment of vines was made.

All these attempts ended in failure. Some of the vineyards produced a few grapes, but many failed to reach fruiting age. Frequently the grapes rotted on the vines before maturing.

The causes of these failures are now understood. The European grape is adapted primarily to regions having dry summers and mild winters. Many diseases had become established on the wild grapes of America, growing in regions of warm, humid summers, but the native vines had developed at least partial resistance to these diseases. The imported vines, however, proved very susceptible. Coupled with this disease susceptibility, the vinifera vines were subject also to low-temperature injury. Few vinifera varieties today are able to withstand subzero temperatures without injury. Therefore, low winter temperatures and the weakening of the vines by disease were undoubtedly the most important factors in the failure of these early plantings. In the Southern States, where winter temperatures are not likely to be low enough to kill the healthy vines of the vinifera varieties, the long, hot, humid summers were ideal for excessive disease development. Fungus diseases in that section were so severe that they alone can easily account for the failure of these early plantings. The root louse, *Phylloxera vitifoliae* Fitch, may also have been a factor.

In colonial days, fungicides to control diseases were unknown. With the present knowledge of the cause and control of grape diseases, greater success with *Vitis vinifera* varieties in the milder parts of the East can be expected. However, the hazards of disease and winter injury are still too great to warrant the commercial planting of these varieties.

DEVELOPMENT OF AMERICAN GRAPE VARIETIES

After 200 years of failure with grapes from Europe and Asia, American horticulturists turned to the species which abound in this country for basic material upon which an industry could be founded. According to Hedrick,[2] Thomas Jefferson was one of the first to appreciate the possible value of American grapes. In 1809 he wrote:

> I think it will be well to push the culture of that grape (the Alexander, the earliest widely distributed American variety) without losing time and efforts in search of foreign vines, which it will take centuries to adapt to our soil and climate.

Between 1810 and 1830 several varieties of grapes of American origin were named and propagated. One of these, the Catawba, is still one of our most important varieties. Another, the Isabella, is also of some importance. After the finding and dissemination of such varieties, commercial grape culture developed rapidly. Between 1830 and 1850, important wine-making centers were developed around York, Pa., and Cincinnati, Ohio, with scattered plantings in many other sections of the country. Many varieties originating as chance seedlings were named and disseminated. Nicholas Longworth, of Cincinnati, stimulated wide interest in the industry through growing grapes, making wine, and writing on the possibilities in American grape culture and wine making.

[2] HEDRICK, U. P., BOOTH, N. O., TAYLOR, O. M., WELLINGTON, R., and DORSEY, M. J. THE GRAPES OF NEW YORK. 564 pp., illus. Albany.

Near the middle of the nineteenth century two events of great importance to American grape culture occurred. The first was the introduction of the Concord variety, originated as a chance seedling at Concord, Mass., and exhibited before the Massachusetts Horticultural Society in 1852 by E. W. Bull. The Concord, because of its vine vigor, hardiness, good quality, wide adaptation, and suitability to a wide variety of uses, quickly became popular; and has been the dominant variety in the eastern part of the United States ever since that time. Its introduction also marked the beginning of the popularity of the grape as a dessert and culinary fruit, whereas previously it had been used almost entirely for wine manufacture.

The second event of importance was the definite hybridization of American grapes with varieties of *Vitis vinifera*. The fruit from the first of these representing Black Hamburg (*V. vinifera*) × Isabella was exhibited at the American Pomological Society meeting in 1852 by W. W. Valk, of Flushing, Long Island, N. Y. Two years later another cross, Golden Chasselas (*V. vinifera*) × Isabella, was exhibited before the Massachusetts Horticultural Society by J. F. Allen, of Salem, Mass. This latter variety, Allen Hybrid, received wide publicity and stimulated great interest in grape breeding. E. S. Rogers, of Salem, Mass., and J. H. Ricketts, of Newburgh, N. Y., soon introduced *V. vinifera* × *V. labrusca* hybrids, several of which are in the trade today. Many other grape growers planted seedlings or made crosses, and their contributions are recorded in the lists of varieties included herein. A. J. Caywood and Jacob Moore in New York, Louis Suelter in Minnesota, Jacob Rommel in Missouri, Joseph Bachman in Arkansas, N. B. White in Massachusetts, and many others have contributed varieties of value.

Toward the close of the nineteenth century, T. V. Munson began the systematic breeding of grapes at Denison, Tex. From the beginning of his work there in 1876 until his death in 1916 he collected grape species and varieties, and hybridized grapes, using particularly the native species of the South, together with *Vitis vinifera* and *V. labrusca* varieties. He introduced many varieties, some of which are today the most satisfactory bunch grapes for the South. Many of his varieties also are adapted to the central and northern sections of the United States and deserve wider trial than they have received. Munson's contribution to the development of the American grape industry has been great indeed. He was a recognized authority, not only on commercial grape growing, on breeding, and on varieties, but on the botany of the American grape species as well.

With the passing of Munson, the leadership in the production of new grape varieties in the United States has passed to the New York State Agricultural Experiment Station at Geneva, N. Y. The grape-breeding program carried on by that station at Geneva and Fredonia, N. Y., since the beginning of the present century has resulted in the introduction of a number of outstanding varieties during the last 15 years. In addition to the extensive program of work under way in New York State, grape-breeding investigations are being carried on at several other State experiment stations: The Minnesota, Maryland, South Dakota, and Texas stations are breeding American bunch grapes; the California station is breeding viniferas; and the Georgia station is working with muscadines. The United States Department of Agriculture is conducting grape-breeding work with all three groups.

There is a very real opportunity through such continued breeding for obtaining varieties of grapes better adapted to the growing conditions existing in various parts of the United States.

VARIETAL CHARACTERISTICS

Approximately 230 varieties of American grapes have been under test at the Arlington Experiment Farm, Arlington, Va., for periods ranging from 5 to 20 years. These varieties were assembled by George C. Husmann, formerly in charge of grape investigations for the Bureau of Plant Industry. The following record of variety characteristics (see tables 1, 2, and 3) is based largely on their behavior at the Arlington Farm, although records obtained elsewhere have also been considered in evaluating the varieties.[3] Descriptions of the varieties are based largely on their performance at Arlington. The tables are intended to be useful in the identification and evaluation of varieties and in suggesting those especially worthy of trial for various purposes in different sections of the United States. Ratings are largely on a comparative basis; where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated.

The 221 varieties described are arranged alphabetically in the tables, and the tables are grouped according to the color of the fruit—table 1 describing white or green varieties; table 2, red varieties; and table 3, blue or black varieties. Included in the descriptions, in summary form, are parentage and originator if known; comparative ratings of vine vigor, injury from spraying, and productiveness; size and compactness of cluster; size, shape, and color of berry; attractiveness, thickness, toughness, and tendency to crack of skin; tendency to shatter; dessert quality; season of ripening; apparent adaptation; sugar content and acidity of fruit; and apparent value.

The parentage listed is that given by the introducers or early describers of the varieties. Names in the parentage list in a number of cases are synonyms rather than correct variety names, but it has seemed unwise to change the designations as given by the introducers.

The following paragraphs explain the ratings given these various characteristics in the tables.

Vigor of vines.

Varieties marked ***** or **** would be considered most satisfactory. Varieties marked *** should be planted only on strong soil and only if very outstanding in other qualities. The *** and ** varieties in most cases will probably be much more vigorous and productive if top-worked on vigorous stocks. Varieties marked * are too weak to warrant planting in any but experimental variety collections.

Resistance to spray injury.

Data on spray injury are based entirely on injury from bordeaux mixture at the Arlington vineyard. Severe injury has occurred on many varieties when sprayed with high pressure and coarse nozzles or guns. This injury has been avoided to a considerable extent by using low pressure and fine nozzles to give mist sprays. Such types of spraying are particularly important with varieties susceptible to

[3] Hedrick, U. P., Booth, N. O., Taylor, O. M., Wellington, R., and Dorsey, M. J. See footnote 2. Munson, T. V. FOUNDATIONS OF AMERICAN GRAPE CULTURE. 252 pp., illus. Denison, Tex. [1909.]

injury. In general, injury has been severe on varieties of *Vitis vinifera*, *V. riparia*, *V. aestivalis* var. *bourquiniana*, and *V. aestivalis*. *V. labrusca* varieties have been very free from spray injury. Hybrids of *V. labrusca* with susceptible sorts have been intermediate. The thin-leaf type, characteristic of *V. vinifera*, *V. riparia*, and *V. bourquiniana*, appears very susceptible to injury, but the thick-leaf type, such as *V. labrusca*, is resistant.

By using care in spraying, all these varieties have been adequately protected from disease without excessive spray injury. The labrusca type varieties are much more foolproof, however, from the standpoint of spray injury than are thin-leaved types.

Under "Resistance to spray injury", ***** represents no injury, **** a trace, *** moderate but not serious, and * represents the burning off of many young leaves when high pressure and coarse nozzles are used.

Since all varieties were well sprayed and the vineyard has been kept quite free of disease, adequate comparative records on disease susceptibility of varieties have not been secured.

Stamens.

The observations of the writers completely support the findings of Beach [4] and Einset [5] and indicate that bees and other insects are not attracted to grape flowers if other blossoming material is available for their use. Such other material is usually abundant at the time grapes bloom. It seems necessary, therefore, that grape varieties be self-pollinating if the best sets of fruit are to be secured.

Apparently varieties with upright stamens are largely self-pollinating. Bagged clusters of such varieties will usually set satisfactory crops with no insect pollination. In these varieties the stamens are clustered about the pistil, and a high degree of self-pollination is assured.

Varieties with reflex or recurved stamens are not self-pollinating, the stamens tending to curve away from the pistil as soon as the cap is shed. Also, on the whole, such varieties do not produce as much or as good pollen. Most varieties, therefore, having recurved stamens tend to set poor crops unless hand-pollinated, even when they are interplanted with others that produce abundant pollen. In the tables, the varieties having upright stamens are indicated by "up", and those having reflex or recurved stamens by "re." A number of varieties are intermediate, having partially recurved stamens. These also have been listed as "re."

Productiveness.

In evaluating productiveness, records of the behavior of varieties at places other than Arlington have been considered, though the latter records have been given primary consideration. In general, varieties producing more than 12 pounds per vine as an average over a series of years have been marked *****; those averaging from 9 to 12 pounds per vine, ****; those averaging 6 to 9 pounds, ***; those averaging 3 to 6 pounds, **; and those averaging less than 3 pounds, *. These yields have been produced under conditions of fair soil and good culture. While varieties might vary somewhat under other growing

[4] BEACH, S. A. SELF-FERTILITY OF THE GRAPE. N. Y. State Agr. Expt. Sta. Bull. 157, pp. 395–441, illus. 1898.

[5] EINSET, O. OPEN POLLINATION VS. HAND POLLINATION OF POLLEN-STERILE GRAPES. N. Y. State Agr. Expt. Sta. Tech. Bull. 162, 14 pp., illus. 1930.

conditions, it is believed that the comparative rating on yields will be substantially similar.

Clusters.

The size of clusters is rated on a comparative basis, with ***** for the largest, **** for large, and *** for medium. In general, varieties having clusters smaller than those indicated as *** would be discounted. Under compactness, ***** indicates the most compact. This condition, in most cases, is undesirable. With extremely compact bunches, when black rot or other decay obtains a start, it tends to infect the whole cluster. The fruit is also more subject to injury in handling. On the other hand, clusters indicated as ** or * are loose and straggly; *** or **** would be rated as the most desirable types for market grapes.

Berry.

Ratings under "Size" are self-explanatory. The most desirable berries for dessert or market use should have a **** or ***** rating; ***, a berry of medium size, would be about the lower limit for market; * or ** size would be useful mainly for manufacturing purposes. Shape is indicated as round, oval (grapes longer than their radial diameter), or oblate (radial diameter greater than length). The legend for color is self-explanatory.

Attractiveness.

Under "Attractiveness" an attempt has been made to evaluate the general impression of the harvested fruit, including brightness and clearness of color, size of berry, size and general appearance of the clusters, and freedom of berries from russet, dullness, or other unattractive features. Varieties rating **** or ***** on attractiveness make an excellent appearance when packed for market. Varieties rating *** or below are of doubtful market value but suitable for manufacturing purposes if other characteristics are right.

Skin.

Thickness and toughness of skin are rated separately. For the best shipping and handling fruit, the skin should be moderately thick and should rate **** or ***** on toughness. Fruits rating ** or *** on thickness and **** or ***** on toughness should have satisfactory shipping quality. Any variety rating *** or less on toughness is likely to be unsatisfactory for handling and shipping. Toughness of skin is more important than thickness from the standpoint of handling quality. Any variety rating ** or * in toughness is likely to go to pieces even while on the vines. Varieties intended for general market purposes should rate at least **** on skin toughness, whereas those for manufacturing purposes or for home use should generally rate at least *** in this characteristic.

Toughness of flesh.

American grape varieties range all the way from an extremely tender melting type of flesh to extreme toughness. With very tough varieties, difficulty is experienced in separating the seed from the pulp. There is no particular association, however, between toughness of flesh and toughness of skin. Toughness of skin rather than of flesh determines the handling quality; * represents the most tender-fleshed varieties, whereas ***** represents the toughest.

Color of juice.

Classifications of color of juice are based on samples pressed fresh from the fruit. All white varieties give a relatively clear juice. The amount of pink or red color varies widely in the red and black grapes, and this is an important factor in variety identification. Generally the juice carries more color as the fruit becomes more mature.

Brush.

The length and color of the brush, or the fibers which adhere to the stem when it is pulled from the berry, are important characters of value in identifying varieties. Under "Length of brush", * indicates a brush of less than one-tenth of an inch in length, *** represents one about one-sixth of an inch in length, while ***** represents one one-fourth inch long or longer. The color of the brush varies somewhat with the maturity of the fruit, tending to become darker as the fruit matures.

Seeds.

Data under number and size of seeds are self-explanatory. A relatively large number of large seeds is usually associated with large berries so that the size and number of seeds should be considered in connection with the size of the berry in evaluating seediness.

The size, shape, and markings of the seeds are a valuable aid in identifying varieties. Frequently from fruit examinations, determination that a variety is one of a group of several that may be quite similar in appearance and season of ripening can be made. Examination of the seed, noting particularly the size and shape of the beak or attachment end and the markings on the upper surface, will frequently make possible final identification of the variety. To aid in such identification, representative seeds of most of the varieties herein described are reproduced in figures 1 to 4. Numbers of the seeds correspond to the numbers given to the varieties in tables 1 to 3. These reproductions are double the diameter of the seeds from which they were taken, which were air-dried before being photographed. Seeds used for purposes of comparison should be removed from the fruit and dried several hours. The careful comparison of seeds has, in the experience of the writers, been of great value in identifying varieties.

Persistence.

The quality of persistence or the adherence of the berries to the stem is extremely important. Varieties that have a marked tendency to shatter or drop from the stem as the berries ripen are of little value except for home production. A variety rated as * or ** should have other very outstanding qualities before it can be recommended for planting, **** or ***** varieties being far superior in this respect.

Resistance to insect injury and cracking.

Many varieties have a marked tendency to crack during periods of wet weather. Following such cracking, bees, wasps, and other insects are likely to begin feeding on the fruit, and in many varieties this may result in almost total loss of the crop. The tendency to crack under unfavorable conditions is an extremely serious weakness of many varieties. It is not necessarily associated with thickness or toughness of skin, because some varieties that have quite a tough skin show a tendency toward cracking. In general, the white varieties have a greater tendency to crack than the black or red ones. In selecting

varieties for any purpose, only those rating **** or ***** in resistance to cracking should be used in sections where heavy rains are likely to occur about the time of harvest.

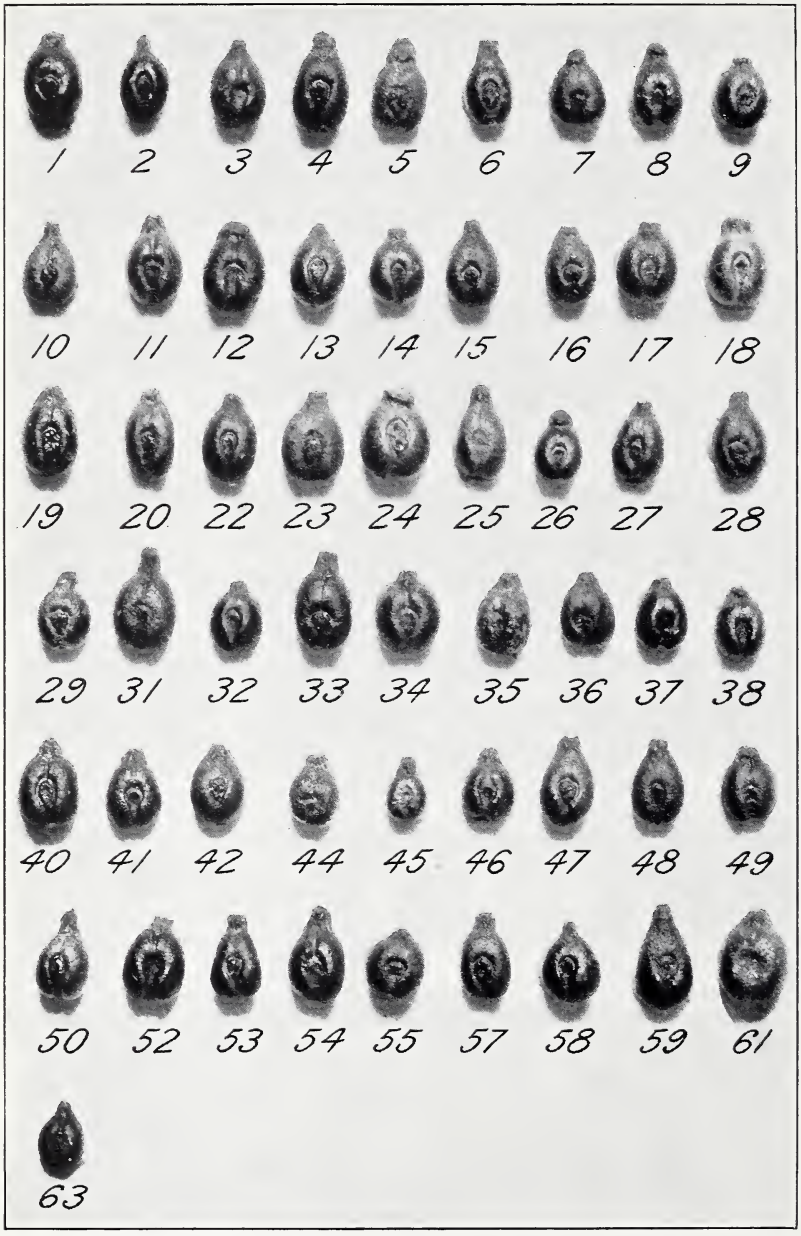


FIGURE 1.—Seeds of white or green varieties of American grapes. Numbers correspond to variety numbers in table 1. Enlarged to two diameters.

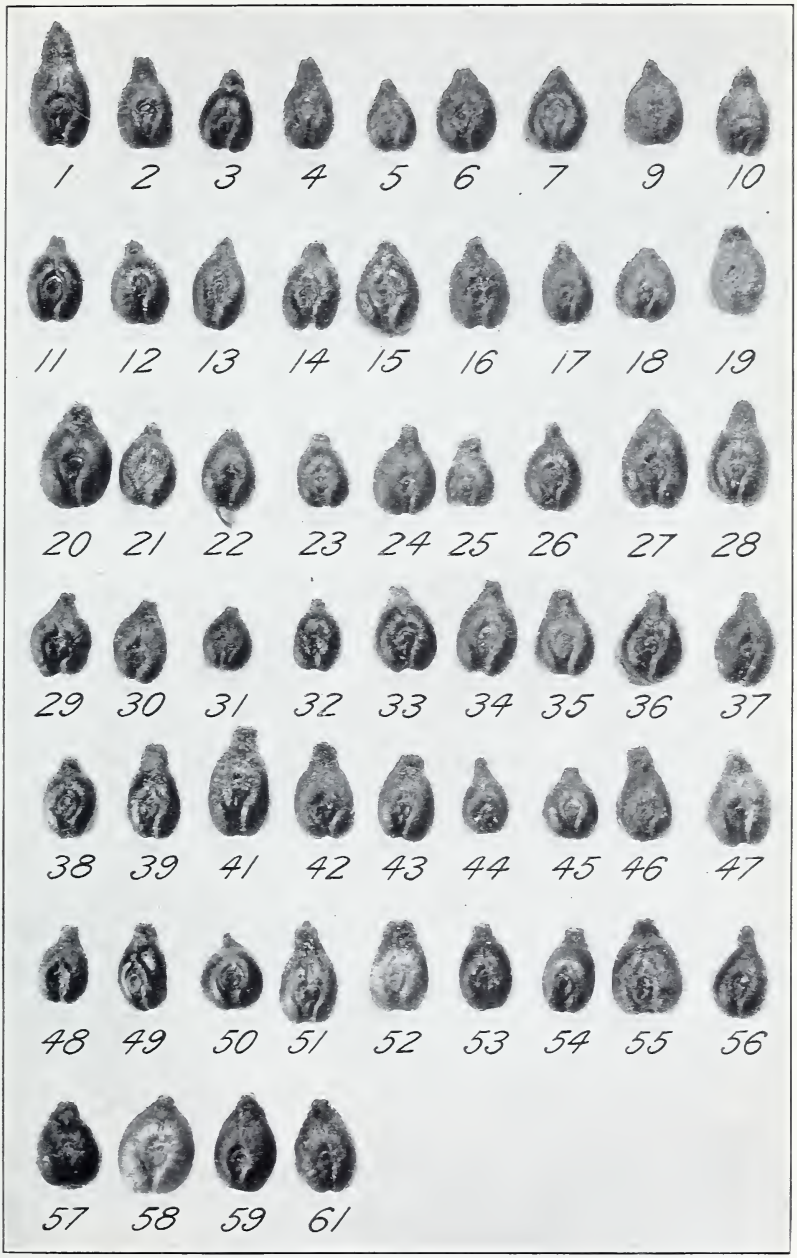


FIGURE 2.—Seeds of red varieties of American grapes. Numbers correspond to variety numbers in table 2. Enlarged to two diameters.

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Flavor.

The flavor of many of these grape varieties is extremely difficult to describe. The legends used are explained under the tables. In general, grapes rated as sweet are those that are relatively low in acid so that the reaction is one of distinct sweetness. Varieties rated as acid are relatively high in acid so that the reaction is one of tartness. Some varieties are much higher in aroma than others. An attempt has been made to indicate these characteristics in the tables.

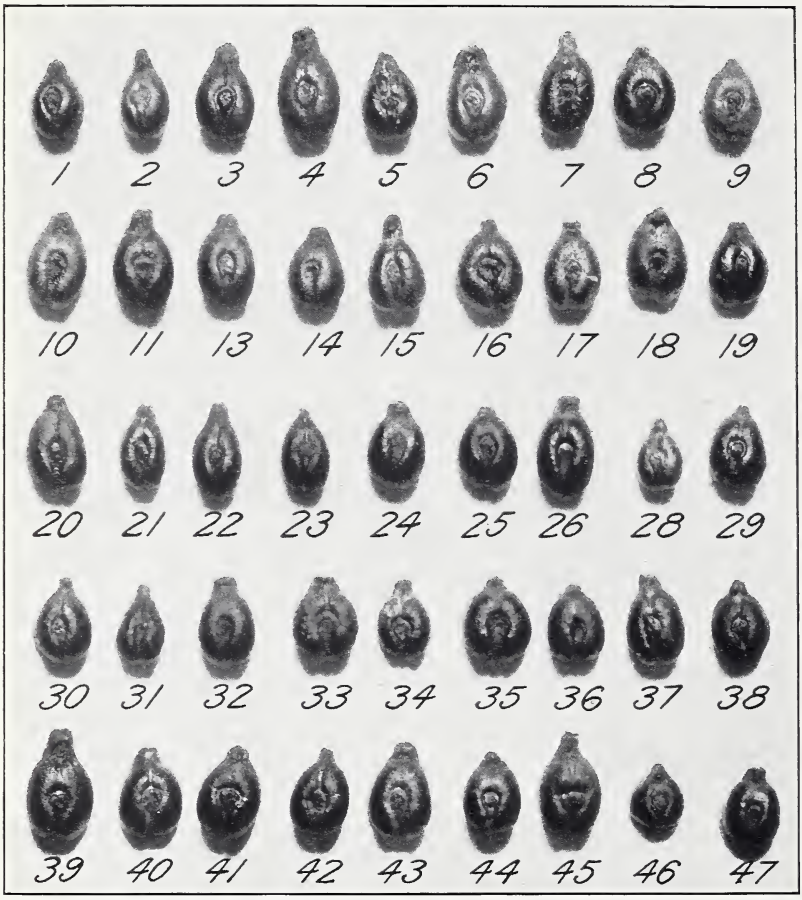

FIGURE 3.—Seeds of blue or black varieties of American grapes. Numbers correspond to variety numbers in table 3. Enlarged to two diameters.

Dessert quality.

An attempt has been made to evaluate the reaction of most people to the dessert quality of grapes. Many individuals would disagree with these ratings. In general, varieties rated as **** or ***** are those that appeal as dessert grapes. They are varieties fairly rich in flavor, with no disturbing characteristics. Varieties rated *** or below should not be considered as dessert grapes, in view of the wide selection of high-quality varieties now available.

Lateness of ripening.

The latest ripening varieties are rated as *****, midseason varieties as ***, and very early varieties as *. Varieties rated as ***** or **** are not generally adapted to the northern sections, as they fail to ripen. Those rated *** will generally ripen in all except the northernmost parts of the United States. Only varieties rated ** or * should be planted in the far North, such as north of Massachusetts in New

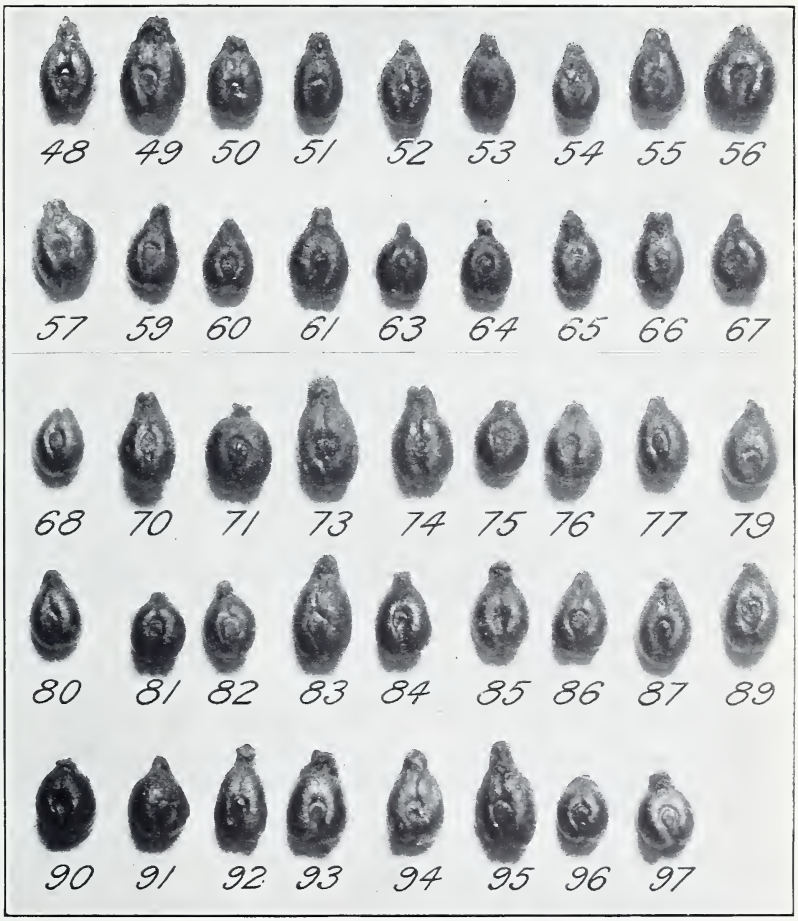

FIGURE 4.—Seeds of blue or black varieties of American grapes. Numbers correspond to variety numbers in table 3. Enlarged to two diameters.

England, northern New York, northern Michigan, and Minnesota. Practically all the varieties here listed will mature during most seasons in the central part of the United States and southward. The statements in regard to comparative season of ripening make it possible to select varieties suitable for any section of the country and which ripen from early until late in the season.

Apparent region of adaptation.

The adaptation of many of the varieties is not definitely known. In determining the region of adaptation, such reports as are available on the varieties have been consulted. The season of ripening has also been considered. The United States has been divided into five regions. The northern region represents the northern half of New England, northern New York, northern Michigan, Wisconsin, and Minnesota. The north-central region includes southern New England, most of New York, northern Pennsylvania, northern Ohio, northern Indiana, northern Illinois, and Iowa. The central region ranges from this belt southward to northern North Carolina, northern Tennessee, Arkansas, and westward. The south-central region represents territory from that area southward to within about 150 miles of the Gulf coast. The southern region includes territory within 150 miles of the Gulf coast. In many cases the varieties have not been tested sufficiently to show just how they will thrive in these regions, but varieties indicated as being promising are at least worthy of trial in the regions indicated.

Sugar content and acidity.

Data on sugar content and acidity are available for only a portion of the varieties. As has been pointed out by Caldwell,[6] the sugar and acid vary widely in grapes from year to year. In seasons of an abundance of sunshine and not excessive moisture, the sugar content is high; whereas in years with a minimum amount of sunshine and much cloudy, rainy, or foggy weather there will be a low sugar content and high acidity. Therefore the ratings for sugar content and acidity are also on a comparative basis. Certain varieties are consistently high in sugar as compared with other varieties, and some are low. Under the conditions of these ratings, sugar content as measured by Balling scale readings on the juice have been rated as ***** if the fruit has averaged over 18.5 percent for a period of several years, **** for 17 to 18.5 percent, *** for 15.5 to 17 percent, ** for 14 to 15.5 percent, and * for 14 percent or under. These data have been taken in part from those published by Caldwell and in part from unpublished data obtained by C. A. Magoon and the writers. The acidity content is also based on comparative readings taken over a period of several years; ***** represents highest acidity, 1.2 percent or more of titratable acid calculated as tartaric, **** 1 to 1.2 percent, *** 0.8 to 1 percent, ** 0.6 to 0.8 percent, and * 0.6 percent or less.

These figures are primarily of value and interest from the standpoint of manufacturing industries rather than from that of determining dessert quality. A variety may be relatively low in sugar and acid and still rate as very good in dessert quality. For wine manufacture, varieties should rate high in sugar. Most of the varieties that have been widely used for wine making also rate fairly high in acidity.

Apparent value.

Any variety having serious inherent weakness has been rated as of no apparent value even though it might produce a few grapes of excellent quality. If the vine is weak, if it tends to be unproductive, or if the fruit has a marked tendency to shatter or crack, it is rated as of no

[6] CALDWELL, J. S. SOME EFFECTS OF SEASONAL CONDITIONS UPON THE CHEMICAL COMPOSITION OF AMERICAN GRAPE JUICES. Jour. Agr. Research 30: 1133–1176, illus. 1925.

value. If there are other similar varieties that ripen at the same season and are of about the same quality but are outstandingly superior in certain respects, other competing varieties are rated as of no value. Varieties have been rated as of value only when they can be definitely recommended for planting or for trial planting in some section of the United States and for some particular purpose.

A number of varieties are listed as suitable for use as home dessert when they are not rated as market grapes. Some of these are not sufficiently productive for market purposes; others may have skins too tender for market handling but are otherwise very satisfactory. Such varieties, of course, could be used for local or roadside markets where a minimum of handling is required.

Dessert grapes for market must rate high in attractiveness, have a sufficiently tough skin to stand handling, and be rated as at least fairly good in quality, and the vine must be a good producer.

To be recommended for wine, a variety must first of all be productive. Varieties that do not average at least 10 pounds per vine are of doubtful value unless they have other very outstanding characteristics. Growers of American-type wine grapes must have high production per acre to compete with vinifera varieties grown in California. In addition, wine grapes should have a fairly tough skin, although they do not necessarily need the handling quality of market grapes. They should rate fairly high in sugar content. If not high in acidity, they may be blended with more acid grapes to supply the acidity needed. It is also very important that the vines be vigorous. If the varieties are vigorous and are heavy producers and if the grapes have the characteristics that appear to be desirable for wine making, they have been listed as wine grapes. Some of these are relatively untried, and the recommendation in many cases is based on the desirability of trying these grapes for wine rather than on the definite information that they are highly suitable for wine-making purposes.

Remarks.

For many of the varieties a further explanation is given under remarks as to why they are or are not recommended as of apparent value.

Of the 221 varieties described, 89 are rated as having apparent value for some purpose in some section of the United States. After a careful study of the other varieties, it is the opinion of the writers that they cannot be recommended for planting for home dessert grapes, market grapes, or for manufacturing purposes. Some of them may have local adaptation or may be of some value in certain sections, but because of certain inherent weaknesses it seems unwise to recommend them.

TABLE 1.—*Descriptions of American white grape varieties*

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
1	Ambrosia	La. V	Seedling of Salem	Alfred Rose	N. Y., 1884	****	****	up	**	***	***	****	r	g.am	**	***	**
2	Armalaga	Li. La. V	Armlong × Malaga	T. V. Munson	Tex., 1902	***	****	up	***	****	****	****	ov.r	am	****	**	****
3	Bell	Ri. La. V. Ba.	Elvira × Delaware	do	Tex., 1883	**	**	up	*	***	***	**	r.ob	g.am	**	**	**
4	Blondin	Li. A. Ba	Ten-Dollar-Prize, Norton, Herbemont.	do	Tex., 1896	**	***	up	***	****	****	***	r	g.am	****	**	****
5	Brocton	La. V. A	Brighton-Winchell-Diamond.	New York Expt. Sta.	N. Y., 1919	**	***	up	***	***	****	***	ov	g.am	****	**	****
6	Christine	La. V. A	Hubbard × Banner	Joseph Bachman	Ark	*	------	up	***	***	****	***	r	lg	***	**	****
7	Colerain [9]	La	Seedling of Concord	David Bundy	Ohio, 1880	****	------	up	***	***	****	***	r	g.am	***	**	**
8	Croton	La. V. Ba	Delaware × Chasselas de Fontainebleau.	S. W. Underhill	N. Y., 1865	***	****	up	****	****	***	**	r	g	***	*	****
9	Diamond	La. V	Concord × Iona	Jacob Moore	N. Y., 1870	***	****	up	****	****	*****	***	ov.r	g.am	***	*	***
10	Dutchess	La. V. Ba. A.	White seedling of Concord × Delaware or Walter.	A. J. Caywood	N. Y., 1868	****	**	up	****	****	***	**	ov.r	g.am	**	*	****
11	Edna	Li. La. V	America × Malaga	T. V. Munson	Tex	****	*	re	***	****	****	***	ov.r	lg	***	***	***
12	Eldorado	La. V	Concord × Allen Hybrid.	J. H. Ricketts	N. Y., 1870	***	****	re	**	**	**	***	r	am	**	****	***
13	Elvira	Ri. La. V	Taylor × Martha	Jacob Rommel	Mo., 1863	***	***	up	****	***	*****	**	ov.r	g	***	**	**
14	Empire State	La. Ri. V	Hartford × Clinton	J. H. Ricketts	N. Y., 1874	****	***	up	*****	****	***	***	r	lg	***	**	***
15	Etta	La. Ri	Seedling of Elvira	Jacob Rommel	Mo., 1879	**	***	up	**	***	***	*	r	g	*	*	**
16	Faith	Ri. La	do	do	Mo., 1881	***	****	up	***	**	*	*	r	g.am	**	*	**
17	Geneva	La. V	[*V. labrusca* × Muscat of Alexander] × Iona.	Jacob Moore	N. Y., 1874	***	*	up	***	***	***	***	ov	g	**	**	****
18	Glenfeld	La	[10]	Geo. J. Magee	N. Y., 1887	****	****	up	****	****	***	***	r	g	*	****	****
19	Gold Coin	A. La	Norton or Cynthiana × Martha.	T. V. Munson	Tex., 1883	****	------	up	****	***	***	***	r	am	**	**	****

Characteristics—Continued

No.	Variety	Toughness of flesh	Color of juice	Brush: Length	Brush: Color [5]	Seeds: Number	Seeds: Size	Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	Remarks
1	Ambrosia	**	Clear	**	y	1-3	****	*	**	m.s	**	***	ne	-----	-----	n	Lacks productiveness; shatters; cracks.
2	Armalaga	*	do	-----	-----	2-4	***	****	***	m.s	***	***	c-s	-----	-----	h.m.d	Valuable in the South.
3	Bell	**	do	-----	-----	-----	***	***	**	s.a	***	**	se- s	-----	-----	n	Unproductive; small.
4	Blondin	**	do	**	g	2-3	****	****	*	s.sp	****	***	c-se	-----	-----	n	Vine weak; fruit cracks.
5	Brocton	*	do	***	g	1-3	***	****	**	s.ar.sp	****	***	ne	-----	-----	h.d	Good quality, but vine is rather weak.
6	Christine	*	do	*	g	2-4	****	****	***	s.ar	***	**	ne-e	-----	-----	n	Very weak vine; quality only fairly good.
7	Colerain [9]	*	do	***	g	1-3	***	***	**	f.s.sp	***	***	ne	**	**	n	Only fairly productive; cracks.
8	Croton	*	do	**	y	1-3	***	****	****	s.sp	****	****	e	*****	*	w	Too small except for manufacture.
9	Diamond	*	do	***	g	2-4	**	****	**	s.a.ar	*****	****	ne-e	****	***	h.m.d w	Tendency to crack and decay.
10	Dutchess	*	do	*	y	1-2	*	****	****	s.sp	*****	***	ne-e	****	*	h.w	Too small for market dessert.
11	Edna	*	do	***	y	2-4	****	***	*	s.a	***	**	e-s	-----	-----	n	Very subject to cracking.
12	Eldorado	**	do	*	y	-----	****	**	***	m.f.s	**	***	ne-e	-----	-----	n	Production and quality below average.
13	Elvira	**	do	*	y	2-4	****	*	*	s.a	**	***	ne-se	**	***	w	Excellent for wine, but cracks seriously
14	Empire State	***	do	*	g	3-4	**	****	****	s.sp	****	***	ne	*	*	h.d.w	Fruit too tender for market dessert.
15	Etta	***	do	*	g.b	-----	***	****	****	s	***	***	ne-se	-----	-----	n	Used for wine, but too light yield.
16	Faith	**	do	*	y	3-4	***	***	***	s.a	****	*	ne-se	-----	-----	n	Too small fruit and not outstanding.
17	Geneva	**	do	***	y	-----	****	***	***	s.sp	**	***	ne	-----	-----	n	Quality only fair; not attractive.
18	Glenfeld	***	do	-----	-----	2-3	***	**	***	s.f.a	***	**	ne	-----	-----	n	Quality fairly good, but fruit unattractive.
19	Gold Coin	***	do	-----	-----	3-4	****	***	****	m.s	***	***	c-se	-----	-----	w	Promising for wine; of no other value.

See footnotes at end of table.

TABLE 1.—*Descriptions of American white grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
20	Gold Dust	La. V. Ba	Lindley × Delaware	T. V. Munson	Tex., 1880	****	*	up	****	*	***	*	r	g.am	*	**	****
21	Golden Drop	La. V. Ba	Adirondack × Delaware	G. C. Pringle	N. Y., 1869	*****	***	up	***	*	**	*	r	g	**	*	***
22	Golden Grain	La. V. Ba	Lindley × Delaware	T. V. Munson	Tex	****	****	up	****	**	****	***	r	g	*	****	****
23	Golden Muscat.	V. La	Muscat Hamburg × Diamond.	New York Expt. Sta.	N. Y., 1916	***	***	up	****	****	***	****	ov	am	****	*	****
24	Governor Ross	La. V	Seedling of Triumph	T. V. Munson	Tex., 1894	***	****	up	***	****	**	****	ov.r	g.am	**	**	**
25	Grein Golden	Ri. La	Seedling of Taylor	Nicholas Grein	Mo., 1881	***	**	re	**	***	**	***	r	am	**	**	****
26	Charles A. Green.	La		F. W. Loucon	Wis	****	****	up	****	****	***	****	ov.r	lg.am	****	**	****
27	Green Early	La		O. J. Green	N. Y., 1887	***	***	up	**	***	***	***	ov.r	g	***	*	***
28	Hidalgo	La. V. Ba	Delago × Brilliant	T. V. Munson	Tex., 1889	***	------	up	***	***	****	****	ov	am	***	------	****
29	Jessica	La. V		Wm. H. Reed	Ontario, 1870	***	**	up	***	**	***	**	r	g.am	*	*	****
30	Kensington [9]	V. Ri. La	Clinton × Buckland Sweetwater.	Wm. Saunders	Ontario, 1870 (?)	***	------	up	**	****	**	***	r	g	**	*	****
31	Krause	Ba. La. V	Herbemont × Niagara	E. W. Krause	Tex., 1893	*****	***	up	*****	****	***	****	r	lg	***	*	***
32	Lady [9]	La	Concord Seedling	Mr. Imlay(?)	Ohio, 1863 (?)	**	------	up	****	***	***	***	r	lg	****	*	***
33	Lady Washington.	La. V	Concord × Allen Hybrid.	J. H. Ricketts	N. Y., 1878	****	****	up	****	****	***	***	r	am	***	**	****
34	Lightfoot	La. V	Seedling of Niagara	W. H. Lightfoot	Ill	**	****	up	****	***	***	***	r.ob	g.am	*	***	****
35	Lindmar	La. V	Lindley × Martha	T. V. Munson	Tex	****	***	up	****	**	***	***	ov	y	*	****	****
36	Linn	La		P. B. Crandall	N. Y., 1890	***	****	up	**	***	***	****	r	g.am	**	***	****
37	Marie Louise	La. V.?	Seedling of Concord ?	Theophile Huber	Ill., 1880	**	***	up	***	***	**	***	ov.r	g	*	*	***
38	Martha	La. V.?	Seedling of Concord	S. Miller	Mo., 1864	**	****	up	**	***	***	***	r	g.am	**	*	***
39	Maxatawney [9]	La. V			Pa., 1843	***	------	re	**	***	***	***	ov.r	am	**	*	****
40	Missouri Riesling.	Ri. La	Seedling of Taylor	Nicholas Grein	Mo., 1870	**	****	up	***	***	**	***	ov.r	g.am	**	**	****
41	Niagara	La. V	Concord × Cassady	Hoag and Clarke	N. Y., 1872	****	*****	up	****	****	***	****	ov.r	am	****	***	***
42	Noah	Ri. La	Seedling of Taylor	Otto Wasserzieher.	Ill., 1873	****	***	up	****	***	***	****	ov.r	am	***	***	***
43	Old Gold	Ri. La. V	Elvira × Brighton	T. V. Munson	Tex	****	*	re	**	**	*	***	r	am	*	**	**
44	Olita	La. V. Ba	Delaware × Irving	do	Tex., 1898	****	***	up	***	***	*	***	r	g.am	***	**	**
45	Olitatoo	La. V. Li	Armlong × Excelsior	do	Tex., 1896	***	*	up	***	****	****	**	r	g	**	*	****

Characteristics—Continued

No.	Variety	Toughness of flesh	Color of juice	Brush		Seeds		Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	Remarks
				Length	Color [5]	Number	Size										
20	Gold Dust	*	Clear	*	y	------	------	***	****	s	**	**	c-sc	------	------	n	Small and unattractive.
21	Golden Drop	*	---do---	*	y	------	**	****	****	s	****	***	nc-s	------	------	n	Too small in cluster and berry.
22	Golden Grain	**	---do---	*	y	2-3	****	**	**	m.s.a	**	***	c-sc	------	------	n	Poor color; small; seedy.
23	Golden Muscat.	*	---do---	****	y	2-3	**	****	***	s.sp	*****	****	c-nc	***	**	h.m.d	Promising for trial. A new variety.
24	Governor Ross	*	---do---	***	y	1-2	**	***	***	f.s.a	***	****	nc-sc	------	------	n	Not attractive; handles poorly.
25	Grein Golden	*	---do---	***	y	2-4	****	**	*	s.a	***	***	nc-sc	------	------	n	Poor producer; shatters.
26	Charles A. Gréen.	***	---do---	****	y	2-4	***	****	***	s.sp	****	***	nc-sc	*	*	h.m.d	Similar to Niagara, but not quite so good.
27	Green Early	**	---do---	**	y	2-4	***	****	***	s.ar	***	**	nc-c	------	------	n	Inferior to Ontario and Portland.
28	Hidalgo	**	---do---	------	------	1-3	****	****	***	s.ar	****	***	sc-s	------	------	h.m.d.w	A good variety; worthy of wider trial.
29	Jessica	*	---do---	**	y.r	------	***	****	****	s.sp	***	***	nc-c	------	------	n	Small; unattractive.
30	Kensington [9]	**	---do---	------	g	------	------	****	****	s.ar	***	***	nc-c	------	------	n	Do.
31	Krause	**	---do---	***	g	2-3	****	**	**	s.sp	***	***	c-s	***	**	h.w	Excellent producer; tends to shatter and crack.
32	Lady [9]	**	---do---	*****	y.r	2-3	**	****	**	s.ar	****	***	nc-c	------	------	n	Good quality, but vine is weak; fruit cracks.
33	Lady Washington.	**	---do---	*	g	------	***	**	**	m.s.a	***	***	nc-c	------	------	n	Productive; quality only fair; cracks.
34	Lightfoot	**	---do---	***	y	2-4	****	****	****	s.sp	***	****	nc	------	------	n	Fairly good, but not outstanding.
35	Lindmar	***	---do---	*	y	1-2	***	***	****	s.sp	**	***	nc-c	------	------	n	Unattractive; quality rather poor.
36	Linn	****	---do---	*	g	2-5	****	**	**	f.s.a	*	***	nc	------	------	n	Do.
37	Marie Louise	*	---do---	------	------	------	**	***	***	s. sp	***	****	nc-sc	------	------	n	Unattractive; quality only fair.
38	Martha	****	---do---	**	y	1-4	***	****	****	f.s.a	***	***	nc-sc	****	*	n	Makes good wine, but lacks productiveness.
39	Maxatawney [9]	*****	---do---	------	------	------	------	***	****	f.s.a	***	****	nc-sc	------	------	n	Lacks productiveness and attractiveness.
40	Missouri Riesling.	**	---do---	------	------	1-3	***	****	***	s.a.sp	**	****	nc-sc	***	****	n	Good for wine, but lacks productiveness.
41	Niagara	****	---do---	****	y	1-4	***	****	****	f.s.a	****	***	nc-sc	***	**	h.m.d	The standard midseason white dessert grape.
42	Noah	***	---do---	**	y	1-3	***	***	***	m.a.sp	***	***	nc-c	****	****	w	A good wine variety; tart for dessert.
43	Old Gold	**	---do---	------	------	------	***	*	*	s.a.sp	*	**	nc-sc	------	------	n	Poor producer; of poor quality.
44	Olita	*	---do---	*	y	2-5	***	***	***	s.ar	***	***	c-sc	*****	**	n	Possibly of value for wine.
45	Olitatoo	***	---do---	------	------	------	**	***	**	s.a	**	****	c-sc	------	------	n	No apparent value.

TABLE 1.—*Descriptions of American white grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
46	Ontario	La. V	Winchell × Diamond	N. Y. Expt. Sta.	N. Y., 1908	***	***	up	****	****	***	***	r	am	****	**	***
47	Pearl	Ri. La	Seedling of Taylor	J. Rommel	Mo	*****	***	up	****	***	**	***	r	g.am	***	***	*
48	Pocklington [9]	La	Seedling of Concord	John Pocklington.	N. Y., 1870	***		up	***	***	***	****	r	g.am	****	****	****
49	Portland	La	Champion × Lutie	N. Y. Expt. Sta.	N. Y., 1912	***	****	up	***	***	**	*****	r	g.am	****	****	***
50	Rebecca	La. V	Accidental seedling	E. M. Peak	N. Y., 1856	**	***	up	****	***	*****	*	r	g.am	***	****	****
51	Ripley	La. V. A	Winchell × Diamond	N. Y. Expt. Sta.	N. Y., 1912	****	*****	up	****	***	****	****	ov.r	am	****	**	****
52	Rommel	Ri. La. V	Elvira × Triumph	T. V. Munson	Tex., 1885	****	**	up	****	***	***	****	r	g	**	**	**
53	Ronaldo	Li. La. V	Armlong × Malaga	do	Tex	****	**	up	*****	****	****	***	r	g	***	***	***
54	Rustler	La. V	Lindley × Martha	do	Tex., 1888	****	*****	re	**	***	**	****	r	g	*	****	****
55	Shelby	La. Ri		D. S. Marvin	N. Y., 1880	****		up	***	***	****	*	r	g.am	***	**	***
56	Taylor [9]	Ri. La	(11)	Mr. Cobb	Ky., 1840	*****		re	*	**	**	**	r	g.am	**	**	***
57	Triumph	La. V	Concord × Chasselas Musque.	G. W. Campbell	Ohio, 1883	***	***	up	****	***	**	****	ov	g.am	**	***	***
58	Uhland	Ri. La	Seedling of Taylor	Wm. Weidmeyer.	Mo	****	***	up	***	**	**	***	ov.r	g	**	*	**
59	Vesta	La. V	Seedling of Salem	C. Engle	Mich	*****	***	re	**	***	**	****	r.ob	g	**	***	****
60	Wapanuka	Ri. La. V. Ba.	Rommel × Brilliant	T. V. Munson	Tex., 1893	****	****	up	***	****	***	****	r	am	****	**	***
61	Wetumka	La. V. Ri. Ba.	Elvira-Herbemont-Gold Coin.	do	do	****	*	up	****	***	***	****	r.ob	g	**	***	****
62	Wilding	Ri. La	(12)	J. Rommel	Mo	***		re	**	***	*	***	r.ob	g	*	***	***
63	Winchell	La. V. A		J. M. Clough	Vt., 1885	****		up	****	***	**	**	r	g.am	***	**	**

No.	Variety	Characteristics—Continued															Remarks
		Toughness of flesh	Color of juice	Brush		Seeds		Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	
				Length	Color [3]	Number	Size										
46	Ontario	**		*	y	1–3	**	***	****	s.ar	*****	*	nc-sc	*****	*	h.m.d.w	A valuable early general-purpose and wine variety.
47	Pearl	**	do	***	y		***	*	*	s.sp	**	***	nc-sc	**	**	n	A heavy producer, but shatters and cracks badly.
48	Pocklington [9]	****	do	*	g	1–6	***	***	***	f.s.ar	***	***	nc-c	**	**	n	A fairly good grape, but is now surpassed by others.
49	Portland	***	do	****	y	3–4	***	****	***	f.s.a	****	*	nc-sc	***	**	h.m.d	An excellent early dessert variety.
50	Rebecca	**	do	****	y		***	****	****	m.f.s	***	**	nc	*	*	n	Small; vine weak; quality good.
51	Ripley	*	do	***	y	3–4	***	****	***	s.ar	*****	***	nc-sc	****	*	h.m.d.w	A new variety that deserves wide testing.
52	Rommel	*	do	**	g.y	1–3	***	*	*	s.a	***	***	c-sc	*	***	n	Productive, but cracks and shatters badly.
53	Ronaldo	**	do	**	y	2–4	****	****	***	s.a.sp	**	****	c-sc	***	****	w	Promising for trial for wine.
54	Rustler	****	do					**	****	m.s	*	**	nc			n	Poor producer; unattractive.
55	Shelby	***	do	*	g.y		**	***	****	m.s	***	***	nc-sc			n	No outstanding merit.
56	Taylor [9]	**	do					****		s.sp	***	***	nc			n	Used for wine, but lacks productiveness.
57	Triumph	**	do	***	g	1–5	***	****	**	s.ar	***	****	nc			n	A fairly good grape; not outstanding.
58	Uhland	*	do	*	y	1–2	**	***	*	m.s	***	***	nc			n	Cracks very badly.
59	Vesta	**	do					**	**	s.f.sp	****	***	nc.sc			n	Poor producer; shatters.
60	Wapanuka	**	do	*	y	2–4	****	**	*	s.sp	***	**	c-sc	***	***	h.d	Recommended for dry sections only, on account of cracking.
61	Wetumka	***	do			2–4	***	**	**	m.s	**	****	c-sc			n	Quality too poor to recommend.
62	Wilding	**	do	*	g	1–4	**	***	***	m.s	*	***	nc			n	Do.
63	Winchell	**	do			1–4	**	***	***	s.sp	****	**	c-sc	*****	*	w	Too small for dessert; old wine variety.

[1] La=*V. labrusca*, V=*V. vinifera*, A=*V. aestivalis*, Ri=*V. riparia* (*vulpina*), Ba=*V. aestivalis* var. *bourquiniana*, Li=*V. linsecomii*, and Ru=*V. rupestris*.

[2] up=upright, and re=reflex.

[3] r=round, ov=oval, ob=oblate, ov.r=oval to round, and r.ob=round to oblate.

[4] am=amber, g=green, lg=light green, g.am=green to amber, and y=yellow.

[5] y=yellow, g=green, g.b=green and brown, y.r=yellow and red, and g.y=green and yellow.

[6] a=acid, ar=aromatic, f=foxy, m=mild, s=sweet, and sp=sprightly.

[7] nc=north central, c=central, sc=south central, and s=south.

[8] h=home, d=dessert, m=market, w=wine, and n=none.

[9] Not fully tested at Arlington Experiment Farm; the information was obtained from other sources.

[10] Found on place of George J. Magee.

[11] Wild seedling found by a Mr. Cobb.

[12] Chance seedling found by J. Rommel.

TABLE 2.—*Descriptions of American red grape varieties*

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
1	Agawam	La. V	Carter × Black Hamburg.	E. S. Rogers	Mass., 1885	*****	*****	up	***	***	**	****	ov.r	m.r	****	****	****
2	Alexander Winter.	La. V		R. S. Alexander	Ohio, 1884	***	*****	re	*	**	**	***	ov.r	m.r	**	***	***
3	Alice	La. A. V. (?)	(9)	W. D. Gunn	N. Y., 1884	***	*****	up	****	***	*****	**	r	p	**	***	****
4	Amber Queen	La. Ri. V	Marion × Black Hamburg.	N. B. White	Mass., 1870	***	***	re	*	**	*	***	ov.r	m.r	**	**	****
5	Amerbonte	Ba. Li. Ru	America × Herbemont	T. V. Munson	Tex	****	*	up	***	****	****	*	r	m	***	**	***
6	Arkansaw	La	Unknown	Joseph Hart	Ark., 1893	****	*****	up	****	***	***	****	r	p.r	****	***	****
7	Atoka	Li. Ru. La. Ba. V.	America × Delaware	T. V. Munson	Tex., 1893	*****	*	up	*****	*****	****	**	r	m	****	**	***
8	Berckmans	Ri. La. Ba	Delaware × Clinton	A. F. Wylie	S. C., 1871	***	***	up	***	*	***	**	r	m.r	**	**	***
9	Bride	La. V. Ba	Brighton × Delaware	Joseph Bachman	Ark	***	**	up	****	****	****	***	r	m.r	***	**	****
10	Brighton	La. V	Diana Hamburg × Concord.	Jacob Moore	N. Y., 1872	***	***	re	***	***	**	****	ov.r	m	****	***	**
11	Brilliant	La. V. Ba	Lindley × Delaware	T. V. Munson	Tex., 1883	**	***	up	***	****	***	***	ov.r	p.r	***	**	****
12	Brilliant Seedling.	La. V. Ba	Seedling of Brilliant	C. G. Miller	Mo., 1893	****	*	up	*****	***	****	***	r.ob	m	****	*	*
13	Caco	La. V	Catawba × Concord [10]	J. Lovett	N. J	****	*****	up	***	***	***	****	r	p.r	****	**	***
14	Captivator	La. V. Ba	Herbert × Meladel	T. V. Munson	Tex., 1902	****	***	up	****	***	***	****	r	p.r	****	***	***
15	Catawba	La. V	Unknown [11]	Major Adlum	D. C., 1823	****	*****	up	****	****	***	***	ov.r	m	****	****	***
16	Cayuga	La. V	Seedling of Adirondac	D. S. Marvin	N. Y., 1886	***	*****	up	***	***	***	****	r	m	**	**	****
17	Challenge	La. V	Concord × Royal Muscadine.	Archer Moore	N. J., 1860	****	***	up	*	**	*	**	r	r	*	***	**
18	Chicago	La	Chance seedling [12]	F. L. Rantenburg.	Ill	****	*****	up	****	***	*****	***	ov.r	m	***	*****	****
19	Cochee	La. Ba		John Burr	Kans., 1887	***	*****	up	***	**	***	***	ov.r	p.r	****	**	***
20	Columbian Imperial.	La. Ri		J. S. McKinley	Ohio, 1885	*****	****	up	***	**	****	*****	r	m.r	*	*****	*****
21	Delaware	La. V. Ba	(13)	A. Thompson	Ohio, 1849	**	*	up	***	**	*****	**	r	p.r	****	**	****

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice	Brush		Seeds		Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	
				Length	Color [5]	Number	Size										
1	Agawam	****	Clear	**	g.y	2–5	*****	*****	*****	s.ar.f	****	***	nc-sc	***	***	h.d.m.d	Excellent except uncertainty in production.
2	Alexander Winter.	***	do	**	r	2–3	*****	****	*****	s.ar	***	***	nc-sc			n	Poor producer; not attractive.
3	Alice	***	do	***	y	2–3	**	*****	***	s.m.f	****	****	nc-sc	****	**	h.d	Good quality and productive; may not color well.
4	Amber Queen	**	do	***	g	1–2	*****	*****	****	s.a.ar	****	***	nc-sc			n	Poor producer; not attractive.
5	Amerbonte	**	do	*	r	1–3	**	*****	*****	s.ar.sp	**	****	c-sc	****	*	w	Promising for wine; too small for other use.
6	Arkansaw	***	do	****	y	1–4	****	*	****	s.ar.f	***	**	c-sc	*	*	h.d	Attractive; extremely foxy in flavor.
7	Atoka	****	do	**	g	3–4	***	*****	*****	s.a.ar.sp	**	****	c-sc	****	****	w	Very promising wine type.
8	Berckmans	**	do	**	g.y	1–4	**	****	****	s.ar.sp	****	****	nc-sc	***	****	h.w	Less attractive, more tart than Delaware.
9	Bride	**	do	****	g.r	2–3	***	***	***	s.a.sp	****	***	nc-sc	*****	***	h.d.w	A promising variety; tends to overbear.
10	Brighton	***	do	***	y	1–5	****	*****	*****	s.ar	*****	**	nc-sc	*****	**	h.d	Excellent quality but lacks productiveness.
11	Brilliant	**	do	**	g.r	1–4	****	****	*****	s.sp	****	***	nc-sc	****	**	h.d	Very good quality; vine not strong: loses foliage.
12	Brilliant Seedling.	**	do	**	r	2–4	****	***	**	s.ar.sp	***	***	nc-sc	**	*	h.d.w	Productive; good quality; fruit very tender.
13	Caco	***	do	***	y	2–3	****	*****	*****	s.ar	****	***	nc-sc	**	**	h.d.m.d	Very promising; does not always color well.
14	Captivator	**	do	***	g	1–4	***	***	*****	s.a.sp	****	**	c-sc	*	***	h.d.m.d	Promising; early; does not always color well.
15	Catawba	***	do	**	g	1–3	***	*****	*****	s.ar.sp	****	****	nc-c	****	****	h.d.m.d. w	The standard champagne wine variety.
16	Cayuga	**	do	****	y	1–3	****	***	**	s.a.sp	***	**	nc-c			n	Very variable in yield and attractiveness.
17	Challenge	***	do	***	y.r		**	*****	*****	s.a.sp	***	****	nc-sc			n	Poor producer; unattractive.
18	Chicago	****	do	***	y	3–4	***	****	*****	f.s	**	****	nc-sc			n	Extremely foxy in flavor.
19	Cochee	**	do	***	g		***	*****	****	s.ar	***	***	nc-sc	*****	**	h.d.w	Very productive; of good quality.
20	Columbian Imperial.	*****	do				*****	****	*****	s.a	*	****	nc-sc			n	Extremely large berries, but of poor quality.
21	Delaware	**	do	**	y	1–4	**	*****	*****	s.ar.sp	*****	***	nc-s	*****	**	h.d.m.d. w.j	The standard of quality; fruit small; vine not strong.

TABLE 2.—*Descriptions of American red grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, **** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
22	Delawba	La. V. Ba	Delaware × Catawba	Dr. Chisholm	Tenn., 1880	***	*****	up	**	***	***	***	ov.r	p	**	****	*****
23	Diana	La. V	Seedling of Catawba	Mrs. Diana Crehore.	Mass., 1844	*****	*****	up	****	***	*****	**	ov.r	p	***	****	****
24	Dracut Amber	La		A. Clement	Mass., 1855	****	*****	up	**	***	***	****	ov	m	***	****	***
25	Dunkirk	La. V	Brighton × Jefferson	N. Y. Expt. Sta.	N. Y., 1920	***	*****	up	***	***	****	**	ov.r	r	****	**	***
26	Ellen Scott	Li. La. V	Armlong × Malaga	T. V. Munson	Tex., 1902	****	*	up	****	*****	***	***	r	r	****	**	****
27	Gaertner	La. V	Carter × White Chasselas.	E. S. Rogers	Mass., 1855	***	*****	re	**	***	**	****	ov.r	p	***	***	***
28	Goethe	La. V	Carter × Black Hamburg.	do	do	*****	***	up	***	***	***	****	ov.r	p	***	**	***
29	Goff	La. V. A.(?)		N. Y. Expt. Sta.	N. Y., 1898	****	***	up	*****	****	****	****	r.ob	r	***	***	***
30	Headlight	V. La. Ba	Moyer × Brilliant	T. V. Munson	Tex., 1895	***		re	**	**	*****	**	r	r	***	**	****
31	Herbemont	Ba	Unknown		1798	*****	*	up	*****	****	*****	**	r	m	****	*	****
32	Iona	La. V	Seedling of Diana	C. W. Grant	N. Y., 1855	**		up	***	***	**	**	ov.r	r	****	**	****
33	Jefferson	La. V	Concord × Iona	J. H. Ricketts	N. Y., 1879	***	*****	up	***	***	**	***	ov.r	p.r	***	****	***
34	Lindley	La. V	Carter × White Chasselas.	E. S. Rogers	Mass., 1855	*****	***	re	***	***	**	****	ov.r	m.r	****	****	****
35	Lucile	La		J. A. Putnam	N. Y., 1890	****	***	up	****	****	*****	****	ov.r	r	***	*	**
36	Lutie	La	(14)	L. C. Chisholm	Tenn., 1885	***	*****	up	**	**	****	***	r.ob	m	**	***	***
37	Massasoit	La. V	Carter × Black Hamburg.	E. S. Rogers	Mass., 1855	****	*****	re	**	**	**	****	ov.r	r	***	***	***
38	Moyer	V. La. Ba	Delaware × Miller Burgundy.	W. H. Reed	Ontario, 1880	***	***	re	***	**	****	**	r	m.r	***	***	****
39	Norfolk	La. V	*V. labrusca* × Black Hamburg.	N. B. White	Mass., 1872	***	*****	up	***	***	**	****	ov.r	m	***	**	***
40	Oneida	La. V	Seedling of Merrimac	H. Thatcher	N. Y., 1875	*	****	up	*	**	**	***	r	r	***	****	****
41	Oriental	La. V	*V. labrusca* (red fruited) × Black Hamburg.	N. B. White	Mass., 1883	*****	***	up	*****	****	***	***	ov.r	m	****	****	****
42	Palmyra	La. V.(?)				***	*****	up	**	***	***	***	r	r	***	***	****
43	Perkins	La. V	(15)	J. Perkins	Mass., 1830	*****	*****	up	***	***	***	****	ov	p	*	**	***

No.	Variety	Characteristics—Continued															Remarks
		Toughness of flesh	Color of juice	Brush		Seeds		Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	
				Length	Color [5]	Number	Size										
22	Delawba	*	Clear	***	y		***	*****	*****	s	**	****	e-sc	**	*	n	Not equal to either of its parents.
23	Diana	****	do	***	g	1–3	**	*****	***	s.a.sp	***	****	nc-sc	***	***	w	A productive variety; excellent for wine.
24	Dracut Amber	****	do	****	y	2–5	****	*****	*****	f.s.a	**	***	nc-sc	**	***	n	Irregular producer; very foxy.
25	Dunkirk	**	do	****	g	2–4	***	***	**	m.s.ar	****	***	nc-sc			h.d	A new variety; of some promise.
26	Ellen Scott	*	do	****	g		***	*****	*****	m.s	***	****	e-s	****	***	h.d.w.j	Productive; showy; possibly a wine type.
27	Gaertner	***	do	**	g.r	2–4	****	****	****	f.s.ar	****	***	nc-sc	**	**	n	Not productive; quality good.
28	Goethe	**	do	****	y	1–3	****	***	****	s.ar	****	****	nc-sc	**	***	n	Production only medium; color poor.
29	Goff	**	do	**	g	1–5	***	***	***	s.ar	****	***	nc-sc	***	**	h.d	Very productive; quality good; berries irregular.
30	Headlight [4]	**	do		r	1–3	***	****	****	s.ar	****	**	nc-sc			n	Very early, but irregular in production.
31	Herbemont	**	do	*	g.r	2–3	*	*****	*****	s.a.ar	**	*****	e-sc	****	****	w	Productive; good wine type for the South.
32	Iona	**	do	***	g	1–4	**	*****	*****	s.ar	*****	****	nc-c			n	Vine too weak for any but best soils.
33	Jefferson	**	do	****	y	1–4	****	*****	****	s.a.ar	***	****	c	****	**	n	Good quality, but vine not strong.
34	Lindley	**	do	**	g.y	2–5	*****	****	*****	f.s.ar	****	***	nc-sc	***	**	h.d	Good quality, but not productive.
35	Lucile	****	do	***	y	1–4	**	****	**	m.s.f.ar	****	***	nc-c	**	**	h.d	Good quality; productive, but cracks badly.
36	Lutie	****	do	***	y	1–4	****	***	*****	s.a.f	***	**	nc-sc			n	Not attractive; strong foxy flavor.
37	Massasoit	***	do	***	y.r	2–4	****	****	*****	s.ar.f	***	***	nc-sc	***	**	n	Good quality, but lacks productiveness.
38	Moyer	**	do	***	y	1–4	***	*****	****	s.ar	****	**	nc-c			n	Do.
39	Norfolk	***	do	****	y.r	1–4	***	***	****	s.a.ar	***	**	nc	****	*****	n	Possibly valuable for wine.
40	Oneida	**	do	**	y	1–3	****	****	****	s.ar	****	****	nc-sc			n	Vine weak; lacks productiveness.
41	Oriental	****	do	***	y.r	3–4	*****	****	*****	s.ar.sp	****	***	e-sc	****	***	h.d.m.d. w	Outstanding at Arlington; worthy of wider trial.
42	Palmyra	****	do	**	y	3–6	****	*****	*****	s.a.ar	***	***	nc-sc			n	Good quality, but lacks productiveness.
43	Perkins	**	do	*****	y	3–4	***	***	***	f.s	*	***	nc-sc	*	**	n	Low in quality; unattractive.

TABLE 2.—*Descriptions of American red grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape	Color		Thickness	Toughness
44	Poughkeepsie	Ba. La. V	Iona × Delaware or Walter.	A. J. Caywood	N. Y., 1880	*	*****	up	***	*	****	*	r	p.r	**	**	***
45	Presly	Ri. La	Elvira × Champion	T. V. Munson	Tex	****	***	up	***	*	**	*	r	m	**	**	****
46	Red Eagle	La. V	Seedling of Black Eagle	do	Tex., 1888	***		re	*	***	**	***	r	r	**	***	**
47	Requa	La. V	Carter × Black Hamburg.	E. S. Rogers	Mass., 1855	****	*****	re	**	***	***	***	r	r	***	***	***
48	Rochester [16]	La. V	(17)	Ellwanger & Barry.	N. Y., 1867	****		up	***	****	*****	***	ov	r	***	**	****
49	Ruby	Ri. La. V	Elvira × Brighton	T. V. Munson	Tex., 1890	****	***	up	***	**	***	**	r	m	***	**	****
50	Rupert	Li. Ru. La. V. Ba.	America × Brilliant	do	do	**	*	up	**	***	***	***	r	r	**	**	***
51	Salem	La. V	Carter × Black Hamburg.	E. S. Rogers	Mass., 1855	***	***	re	**	****	***	****	r	m.r	****	****	****
52	Shauman	La. V.(?)	Unknown	J. F. Wittel	Ind	***	*****	re	**	***	**	****	r	r	***	**	****
53	St. John	La. V. Ba	Brighton × Delaware	H. B. Spencer	Ohio, 1890	**		re	*	**	***	**	r	r	**	*	****
54	Sunrise	La. V. Ba	Seedling of Brilliant	J. Bachman	Ark	**	***	up	***	**	**	***	r	m.r	**	*	*
55	Tonkawa	La. V. Ba	Delago × Brilliant	T. V. Munson	Tex., 1899	*****	***	up	*****	***	***	***	ov	m	***	**	****
56	Ulster	La. V. A.(?)	Catawba × *V. aestivalis*?	A. J. Caywood	N. Y., 1885	**	*****	up	**	***	**	****	ov.r	m.r	***	****	****
57	Urbana	La. V	Ross × Mills	N. Y. Expt. Sta	N. Y., 1912	***	***	up	***	****	**	****	ov.r	p.r	****	****	**
58	Valhallah	Ri. La. V. Ba. Ca.	Elvicand × Brilliant	T. V. Munson	Tex., 1893	****		up	****	***	**	***	r	m.r	***	***	****
59	Vergennes	La	(18)	W. C. Green	Vt., 1874	****	*****	up	****	***	***	***	ov.r	p	***	****	**
60	Wayne	La. V	Mills × Ontario	N. Y. Expt. Sta	N. Y., 1901	**		up	**	***	***	***	ov	m.r	****	****	****
61	Wyoming	La		S. J. Parker	N. Y., 1861	***	**	re	**	**	**	***	r	r	***	****	***

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice	Brush		Seeds		Persistence	Resistance to insect injury and cracking	Flavor [6]	Dessert quality	Lateness of ripening	Apparent region of adaptation [7]	Sugar content	Acidity	Apparent value [8]	
				Length	Color [3]	Number	Size										
44	Pougnkeepsie [9]	**	Clear				**	*****	****	s.ar	****	***	nc-sc			n	Vine weak; fruit not attractive.
45	Presly	**	do	***	g.r	3–4	**	***	*****	s.ar	***	*	nc-sc	***	***	n	Possibly of some value for wine.
46	Red Eagle	**	do	**	g	1–5	****	*****	****	f.s.ar	***	**	nc-sc			n	Lacks productiveness; fruit not outstanding.
47	Requa	**	do	****	y		****	*****	*****	f.s.ar	***	***	nc-sc			n	Quality fairly good, but lacks productiveness.
48	Rochester [10]	**	do	***	g.r			****	****	s.sp	**	****	nc			n	Fruit quality only fair.
49	Ruby	**	do	*	g	1–2	***	****	****	s.ar	***	***	c-sc			n	Fruit definitely inferior to Delaware.
50	Rupert	**	do	*	g		***	****	****	m.s.ar	*	****	c-sc			n	Vine weak; crop poor.
51	Salem	***	do	**	g	1–6	****	*****	*****	s.ar	****	***	nc-sc	****	**	h.d	Quality very good, but production uncertain.
52	Shauman	**	do	**	r	1–2	****	***	*****	f.s.ar	***	***	nc-sc			n	Lacks productiveness; quality not outstanding.
53	St. John	*	do	**	g	1–2	****	****	*****	s.sp	***	****	nc-sc			n	Vine weak; production poor.
54	Sunrise	*	do	**	g.r		***	****	***	s	**	**	c-sc			n	Fruit too tender; quality only fair.
55	Tonkawa	**	do	**	g.r	2–4	****	*****	****	s.ar	***	***	c-sc	***	***	h.d.w	Heavy producer: vigorous; quality fairly good.
56	Ulster	*	do	**	y	1–6	***	*****	*****	f.s.ar	****	***	nc-sc	***	***	n	Vine rather weak; crop uncertain.
57	Urbana	*	do	****	y		***	*****	*****	s.ar	****	****	c-sc			h.d	Good quality; late; new variety; merits wide trial.
58	Valhallah	****	do	***	r	2–3	****	*****	*****	s.a.sp	**	***	c-sc	*	**		Quality not high enough for general usage.
59	Vergennes	**	do	***	g	1–5	***	*****	****	f.s.ar	***	****	nc-sc	**	**	h.d.m.d	Vigorous; productive; late variety.
60	Wayne	*	do	***	r			****	****	s.ar	****	***	nc-sc			h.d	Quality very good; vines not vigorous.
61	Wyoming	****	do	***	g.r	1–2	***	***	*****	f.s	**	***	nc-sc			n	An old variety of little present value.

[1] La=*V. labrusca*, V=*V. vinifera*, A=*V. aestivalis*, Ri=*V. riparia* (*vulpina*), Ba=*V. aestivalis* var *bourquiniana*, Li=*V. linsecomii*, Ru=*V. rupestris*, and Ca=*V. caudicans*.

[2] up=upright, and re=reflex.

[3] r=round, ov=oval, ob=oblate, ov.r=oval to round, and r.ob=round to oblate.

[4] m=maroon, r=red, p=pink, m.r=maroon to red, and p.r=pink to red.

[5] y=yellow, g=green, g.y=green and yellow, g.r=green and red, and y.r=yellow and red.

[6] a=acid, ar=aromatic, f=foxy, m=mild, s=sweet, and sp=sprightly.

[7] nc=north central, c=central, sc=south central, and s=south.

[8] h=home, d=dessert, m=market, w=wine, n=none, and j=unfermented juice.

[9] Chance seedling found by W. D. Gunn.

[10] Introduced by J. Lovett.

[11] Introduced by Major Adlum.

[12] Chance seedling found by F. L. Rautenberg.

[13] Introduced by A. Thompson.

[14] Chance seedling found by L. C. Chisholm.

[15] Accidental seedling found by J. Perkins.

[16] Not fully tested at Arlington Experiment Farm; the information was obtained from other sources.

[17] From a lot of mixed seedlings from Ellwanger & Barry.

[18] Chance seedling found by W. C. Green.

TABLE 3.—*Descriptions of American black grape varieties*

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
1	Alvey	A. V		Dr. Harvey	Md	*	***	re	*	***	**	**	ov	b	***	**	**
2	America	Li. Ru	Jaeger × Male Rupestris	T. V. Munson	Tex., 1885	***	*	re	**	***	***	**	r	b	***	**	**
3	Aminia [10]	La. V	Carter × Black Hamburg	E. S. Rogers	Mass., 1855	****		re	***	***	**	***	ov.r	b	***	*****	**
4	August Giant	La. V	*V. labrusca* (red fruited) × Black Hamburg.	N. B. White	Mass., 1861	*****	*	re	*	***	**	****	ov.r	b	***	****	****
5	Bacchus	Ri. La	Seedling of Clinton	J. H. Ricketts	N. Y., 1879	*****	***	up	****	*	****	*	r	b	**	*	****
6	Bailey	Li. La. V	Big Berry × Triumph	T. V. Munson	Tex., 1886	****	***	up	****	*****	****	****	r	b	****	**	****
7	Barry [10]	La. V	Carter × Black Hamburg	E. S. Rogers	Mass., 1855	****		re	**	***	***	****	ov.r	b	***	**	*****
8	Beacon	Li. La	Big Berry × Coneord	T. V. Munson	Tex., 1886	***		up	***	***	****	***	r	b	***	***	****
9	Beta	Ri. La	Carver × Concord	Louis Suelter	Minn., 1881	****	*	up	****	**	***	***	r	b	**	**	**
10	Big Hope	Li. La. V	Big Berry × Triumph	T. V. Munson	Tex	*****		up	***	***	**	**	r	b	**	**	****
11	Black Eagle	La. V	Concord × Black Prinee	S. W. Underhill	N. Y., 1866	****	***	re	*	***	**	****	ov.r	b	**	**	**
12	Black Pearl	Ri. La		C. Schraidt	Ohio, 1875	****	****	re	*	***	***	**	ov	b	*	**	**
13	Brown	La. V	Seedling of Isabella	W. B. Brown	N. Y., 1889	****	*****	up	****	****	***	****	r	bl	***	*****	***
14	Campbell Early	La. V	Moore × Belvidere × Muscat Hamburg.	G. W. Campbell	Ohio, 1892	****	*****	up	****	****	***	****	r.ob	bl	*****	***	*****
15	Canada	Ri. La. V	Clinton × Black St. Peters	Charles Arnold	Ontario, 1860	***	*	re	***	***	****	**	ov.r	b	***	**	****
16	Captain	Li. Ru. La	Ameriea × R. W. Munson	T. V. Munson	Tex., 1896	*****	*	up	****	****	**	***	ov	b	***	***	***
17	Carman	Li. V. La	Premier × Triumph	do	Tex., 1883	****		up	***	***	****	***	r.ob	b	***	***	****
18	Caywood 50	La. V		A. J. Caywood	N. Y., 1888	****	****	up	****	***	***	***	r.ob	bl	***	***	*****
19	Champanel	Ci. La	*V. champini* × Worden	T. V. Munson	Tex., 1893	*****	*****	up	*****	***	***	***	r	b	***	****	****
20	Champion	La	Unknown		N. Y., 1870	*****	*****	up	****	***	**	***	r	b	**	****	****
21	Clevener	La. Ri. A	Unknown	(11)	N. J	*	****	up	*	**	**	**	ov	b	*	**	****
22	Clinton	Ri. La	(12)		N. Y., 1835	*****	***	up	****	**	***	**	r	b	***	****	***
23	Cloeta	Li. Ru. La	America × R. W. Munson	T. V. Munson	Tex., 1902	*****	***	up	*****	***	***	***	r	b	***	****	***
24	Concord	La	Seedling of wild *V. labrusca*	Ephraim Bull	Mass., 1849	****	****	up	****	****	***	****	r	bl	****	****	****
25	Cottage	La	Seedling of Concord	do	Mass	**	****	up	**	**	*	***	r	bl	**	****	****
26	Creveling	La. V	(13)		Pa., 1857	***	****	re	**	****	*	***	ov.r	b	***	****	****
27	Cunningham [10]	Ba		Jacob Cunningham.	Va., 1812	****		re	***	***	****	*	r	b	**	**	****

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice [5]	Brush		Seeds		Persistence	Resistance to cracking	Flavor [7]	Dessert quality	Lateness of ripening	Apparent region of adaptation [8]	Sugar content	Acidity	Apparent value [9]	
				Length	Color [6]	Number	Size										
1	Alvey	*	p	*	r	1-3	****	****	****	s.ar.sp	****	***	nc-sc	------	------	n	High quality, but vine weak and unproductive.
2	America	*	r	*	r	2-5	***	****	****	s.ar.sp	**	*****	c-sc	------	------	n	Used for red wine, but lacks productiveness.
3	Aminia [10]	**	r	------	------	------	------	****	****	s.f.ar	***	***	nc	------	------	n	Quality fairly good, but lacks productiveness.
4	August Giant	**	r	*****	r	2-5	*****	******	****	s.ar.sp	****	***	nc-c	------	------	n	High quality, but does not set good crop.
5	Bacchus	***	r	*	r.g	1-4	***	*****	****	a.s.p	**	***	nc-sc	***	*****	w	Widely used for wine; severe bird damage.
6	Bailey	**	p	***	r	3-4	****	******	****	s.a	***	****	sc-s	****	***	h.m.d	Attractive grape; productive; quality fairly good.
7	Barry [10]	**	cl	------	------	1-4	****	****	****	s.ar.sp	****	****	nc	**	****	n	Good quality, but fails to set well.
8	Beacon	**	------	------	------	------	****	***	****	s.ar.sp	**	****	sc-s	------	------	h.m	Does well in the extreme South.
9	Beta	***	cl	*	r	2-3	**	****	**	s.a.sp	*	*	n-nc	*****	****	h.w	Early; productive; hardy; one of best for the far North.
10	Big Hope	**	p	*	r	2-5	****	**	****	s.a	*	***	c-s	------	------	n	Quality too poor to recommend.
11	Black Eagle	**	p	*	r.g	2-3	*****	****	***	s.ar.sp	****	****	nc	------	------	n	Lacks productiveness.
12	Black Pearl	***	p	------	------	------	------	****	***	s.a.sp	**	***	nc	------	------	n	Do.
13	Brown	****	p	***	r.g	2-4	****	**	***	f.s	***	**	nc-sc	*	***	h	Vigorous; fairly productive, but shatters.
14	Campbell Early	****	cl	****	r	1-4	**	*****	****	s.f.a	****	**	nc-c	**	**	h.m.d	An excellent variety, rather variable in productiveness.
15	Canada	****	cl	**	r	1-3	***	****	****	a.ar.sp	*	****	nc	***	****	w	An old wine variety.
16	Captain	**	p	*	g	2-5	****	***	****	s.a.ar	***	****	c-sc	***	***	w	Productive; vigorous; promising for wine.
17	Carman	**	r	*	y	2-3	**	*****	****	s.a.sp	***	****	c-sc	***	**	h.m.d	Well adapted to the far South.
18	Caywood 50	****	cl	***	r.g	2-3	***	*	****	f.s.a	***	***	nc-sc	------	------	n	Productive and vigorous, but shatters badly.
19	Champanel	**	r	***	y	2-4	****	*****	****	s.a	*	***	nc-sc	*	****	n	Productive; disease resistant, but of poor quality.
20	Champion	**	cl	***	y	1-4	****	**	****	f.s.a	*	*	nc-c	**	****	n	Productive; vigorous; early, but of poor quality.
21	Clevener	**	r	***	y	------	***	***	****	s.ar.sp	**	****	nc-sc	*	*****	n	Weak; unproductive. Used for wine.
22	Clinton	*	r	*	r	1-3	***	*****	****	s.a.ar.sp	**	***	nc-sc	*****	*****	w	Widely used for red wine.
23	Cloeta	**	p	***	r	3-4	***	****	****	s.a.sp	**	***	nc-s	***	***	h.m.d	Productive; vigorous; valuable in the South.
24	Concord	****	cl	*****	y	2-4	***	***	****	s.a.f.ar	****	***	nc-sc	**	***	h.m.d.w	The standard all-purpose American variety.
25	Cottage	***	cl	***	r	1-4	***	***	***	s.a.ar	****	**	nc	------	------	n	Lacks vigor and productiveness.
26	Creveling	***	p	*****	r	2-3	****	****	****	f.s.a.sp	***	**	nc-sc	------	------	n	Lacks productiveness; quality fairly good
27	Cunningham [10]	**	------	------	------	2-5	***	****	***	s.a.sp	*	****	c-sc	------	------	n	Wine type, but lacks productiveness.

TABLE 3.—*Descriptions of American black grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
28	Cynthiana	A. La		(14)		*****	*	up	***	***	*****	*	r	b	***	*	****
29	Dakota	Ri. La	Carver × Concord	Louis Suelter	Minn., 1881	*****	**	up	****	***	*****	**	r	b	***	*	****
30	Diogenes (Ironclad).	Ri. La	Found [15]		Pa., 1873	*****	***	re	**	*	****	*	r	b	*	**	****
31	Downing	La. V	Croton × Black Hamburg	J. H. Ricketts	N. Y., 1865	**	***	up	***	****	****	****	ov	b	****	****	**
32	Early Concord	La		J. Kready	Pa., 1874	****	****	up	****	****	***	****	r	bl	****	****	****
33	Early Dawn	La. V. A	Isabella × Black Hamburg	W. A. M. Culbert	N. Y., 1870	***	***	re	**	**	**	***	r	b	**	***	***
34	Early Victor	La. V. Ba	Delaware × Hartford	John Burr	Kans., 1871	***	****	up	***	***	***	***	r	bl	****	***	****
35	Eaton	La	Seedling of Concord	M. C. Eaton	N. H., 1879	**	****	up	**	****	***	*****	ov.r	b	*****	***	*****
36	Eclipse	La. V	Seedling of Niagara	A. E. Riehl	Ill., 1890	***	****	re	*	**	*	***	ov	bi	*	****	**
37	Elvibach	Ri. La	Elvira × Bacchus	T. V. Munson	Tex	*****	*	re	**	**	*	**	r	bl	*	**	****
38	Emerald	La. V. Ba	Delaware × *V. vinifera*	Dr. Saunders	Canada, 1886	**	**	re	**	**	**	**	ov.r	b	**	**	****
39	Essex	La. V	Carter × Black Hamburg	E. S. Rogers	Mass., 1855	**	*****	re	*	***	**	****	ov.r	b	**	****	*****
40	Eumelan	La. V. A	Chance seedling [16]		N. Y., 1847	****	***	re	****	***	***	***	r	b	***	***	****
41	Fern Munson [10]	Li. V. La	Premier × Catawba	T. V. Munson	Tex., 1883	****		up	***	****	***	****	r	b	****	**	****
42	Franklin	Ri		Found [17]	Pa., 1860	***	***	re	**	**	***	**	r	b	*	**	****
43	Fredonia	La	Champion × Lucile	N. Y. Expt. Sta.	N. Y., 1915	***	*****	up	***	****	***	****	r	bl	*****	****	***
44	Hartford	La. V	Isabella × fox grape	P. W. Steel	Conn., 1849	****	***	up	*****	****	****	***	r	bl	****	****	****
45	Herbert	La. V	Carter × Black Hamburg	E. S. Rogers	Mass., 1855	****	*****	re	**	***	***	****	r	b	****	****	****
46	Hermann	La. A	Seedling of Norton	F. Langondoffer	Mo., 1860	*****	*	up	*	***	****	*	r	b	*	*	****
47	Hicks	La	[18]		Mo., 1893	***	****	up	***	***	***	***	r	bl	***	****	***
48	Highland	La. V	Concord × Jura Muscat	J. H. Ricketts	N. Y., 1874	**	**	up	**	****	****	****	ov	b	****	****	****
49	Isabella	La. V	[19]		N. Y., 1816	*****	*****	up	***	***	***	****	ov	b	**	****	****
50	Ives	La. A		H. Ives	Ohio, 1840	***	***	up	***	***	***	***	r.ov	b	**	*****	*****
51	Jaeger [10]	Li. Ba	Premier × Herbemont	T. V. Munson	Tex., 1883	*****		up	****	***	***	**	r	b	*	***	****
52	Janesville [10]	La. Ri	Hartford × Clinton	F. W. Loudon	Wis., 1858	****		up	****	***	***	***	r	bl	***	****	***
53	Jewel [10]	La. V. Ba	Seedling of Delaware	John Burr	Kans., 1874	***		re	***	**	***	***	ov.r	bl	**	**	****
54	Judge Miller	Ri. La. V	Cornucopia × Hartford	E. F. L. Rautenberg.	Ill	*	****	up	*	*	****	*	r	b	*	**	***
55	Kentucky	A. La	Norton × Concord	J. Childers	Ky., 1887	****	**	re	***	****	*	***	r	b	**	***	****

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice [5]	Brush		Seeds		Persistence	Resistance to cracking	Flavor [7]	Dessert quality	Lateness of ripening	Apparent region of adaptation [8]	Sugar content	Acidity	Apparent value [9]	
				Length	Color [6]	Number	Size										
28	Cynthiana	****	el	*	r	2–4	*	****	****	s.a.sp	*	*****	c-se	****	*****	w	Widely used for red wine.
29	Dakota	***	r	***	r.g	3–4	***	****	***	s.a.sp	**	**	nē	**	*****	h.w	Heavy producer; adapted in far North.
30	Diogenes (Ironclad).	**	r	*	r.y	1–4	**	****	****	s.a.sp	*	**	ne-se	***	*****	n	Wine type, but lacks in productiveness.
31	Downing	*	p	****	r	1–3	***	****	****	s.ar.sp	*****	*****	e	-----	-----	h	Quality very good; lacks productiveness.
32	Early Concord	****	el	****	y	1–3	***	***	****	s.a.f.ar	****	***	ne-se	-----	-----	h.n.d.w	Little if any earlier than Concord.
33	Early Dawn	****	p	*	r	2–4	***	****	****	s.a.ar	**	**	ne-se	-----	-----	n	Lacking in quality and productiveness.
34	Early Victor	***	p	***	r.g	2–4	***	****	****	s.ar	****	**	ne-se	**	**	h.d	Good; moderately early.
35	Eaton	***	p	***	g	2–3	****	****	***	f.s.ar	****	***	ne-e	*	****	n	Large, showy; lacks productiveness.
36	Eclipse	**	r	*	g	2–3	***	***	****	f.s.ar	****	**	ne-se	-----	-----	n	Lacks productiveness and attractiveness.
37	Elvibach	**	p	*	g	1–4	***	**	****	s.ar	***	****	ne-se	-----	-----	n	Poor producer; vine vigorous.
38	Emerald	*	p	*	r	1–2	****	*****	****	s.ar.sp	****	***	ne	-----	-----	n	Poor producer; weak vine.
39	Essex	***	el	****	r.g	3–4	*****	*****	****	s.ar.sp	****	***	ne-se	-----	-----	n	Do.
40	Eumelan	****	p	*	y	2–3	***	****	****	s.sp.ar	****	**	ne-se	*****	**	h.d.w	A good general-purpose variety.
41	Fern Munson [10]	*	-----	**	r.g	-----	-----	*****	*****	s.sp	****	****	e-s	-----	-----	h.d	Good quality; not a heavy producer.
42	Franklin	***	r	**	r	1–2	***	*****	****	s.a	***	***	ne-se	**	*****	n	Used for wine, but lacks productiveness.
43	Fredonia	***	p	****	r.g	2–4	****	**	***	s.a.f	****	*	ne-se	**	***	h.m.d	The most promising very early black variety.
44	Hartford	****	p	****	r.g	2–4	***	*	***	s.a.f	**	**	ne-se	*	**	n	Shatters very badly; quality not high.
45	Herbert	***	p	**	y.r	3–6	****	*****	****	s.ar.sp	****	***	ne-se	***	***	n	Very good quality, but uncertain producer.
46	Hermann	**	el	*	r.g	-----	*	*****	***	a.ar.sp	*	*****	e-s	-----	-----	n	Makes excellent wine, but lacks productiveness.
47	Hicks	***	el	****	y	2–3	**	***	****	f.s.ar	****	***	ne-se	-----	-----	h	Ripens more evenly than Concord in the South.
48	Highland	**	el	*	g	2–4	****	****	****	s.a.sp.	***	*****	es-s	-----	-----	n	Vine weak; lacks productiveness; very late.
49	Isabella	**	el	*****	r	1–3	****	****	****	s.a.sp	***	***	ne-se	****	****	h.d	One of the oldest varieties; does not ripen evenly in the South.
50	Ives	****	el	**	r.g	2–4	**	*****	****	s.a	*	***	ne-se	**	***	w	An old wine variety; not productive at Arlington.
51	Jaeger [10]	**	r	*	r	2–5	****	*****	****	s.a.sp	*	****	se-s	-----	-----	n	Quality and attractiveness poor.
52	Janesville [10]	****	r	**	r	-----	****	****	****	s.a	***	**	ne	-----	-----	n	Possibly valuable for the far North.
53	Jewel [10]	**	r	*	r	1–4	***	****	****	s.ar.sp	****	**	ne-se	-----	-----	n	Small size; lacks productiveness.
54	Judge Miller	***	el	*	r	2–4	***	****	***	s.a.sp	*	****	ne	-----	-----	n	Weak vine, unproductive.
55	Kentucky	***	p	**	y	2–5	***	****	****	m.s	*	****	e-se	-----	-----	n	Lacks quality.

TABLE 3.—*Descriptions of American black grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
56	King [10]	La. ?	Bud sport or variety of Concord.	W. K. Munson	Mich., 1892	****		up	****	****	****	*****	r	bl	****	***	**
57	King Philip	La. V. Ri		N. B. White	Mass., 1900 (?)	****	***	re	*	****	*	****	ov	b	**	***	*****
58	Kiown	Li. Ba	Jaeger 43× Herbemont	T. V. Munson	Tex., 1893	*****		re	***	***	***	**	r	bl	**	**	***
59	Kline			A. C. Thompson	N. J	***	*	up	***	***	***	*	r	bl	**	**	****
60	Lenoir	Ba				****	***	up	***	****	***	**	r	b	****	***	****
61	Little Blue	La. V. A		A. J. Caywood	N. Y., 1888	***	***	re	***	***	**	***	r	bl	**	***	**
62	Livingston	La. V	Seedling of Wilder or Aminia	C. J. Wheaton	N. Y	***	*****	up	**	***	**	***	r	bl	**	**	****
63	Lomanto	Ci. La. V. Ba.	Salado × Pense	T. V. Munson	Tex., 1902	***	****	up	****	***	***	***	r	b	****	**	****
64	Loretto	Li. La	Seedling of Neosho	Max Zahner	Kans	****	***	up	****	***	****	**	r	bl	***	**	****
65	Lourisiana	Ba		M. Theard	La	****	*	up	***	**	*****	**	r	bl	**	*	****
66	Mabel	La. V. Ba	Seedling of Walter	A. J. Caywood	N. Y	***	***	up	***	***	****	**	r	bl	***	**	***
67	Manito	Li. Ru. La. V. Ba.	America × Brilliant	T. V. Munson	Tex	*****	***	up	****	***	***	***	r	bl	**	****	**
68	Marguerite	Li. Ba	Secund × Herbemont	do	Tex	*****	*	up	*****	**	*****	**	r	b	***	***	***
69	Marion	Ri. La		Mr. Shephard	Ohio	*****		re	***	***	**	***	r	b	**	***	***
70	Mary Favorite	La. V. Ba. (?).	(20)		Ind., 1889	****	***	up	****	**	****	**	r	b	****	***	***
71	McPike [10]	La	Seedling of Worden	H. G. McPike	Ill., 1890	****		up	***	***	***	*****	r	b	****	***	***
72	Mericadel	Li. Ru. La. Ba.	America × Delaware	T. V. Munson	Tex., 1898	****		up	***	***	***	***	r	b	***	**	***
73	Merrimac	La. V	Carter × White Chasselas	E. S. Rogers	Mass., 1855	****		re	***	***	***	****	r	b	***	****	*****
74	Mills	V. La	Muscat Hamburg × Crevelling.	Wm. H. Mills	Ontario, 1870	***	***	up	****	*****	****	****	ov	b	*****	****	****
75	Montefiore	Ri. La. V	Taylor × Ives	Jacob Rommel	Mo	***	****	up	***	**	****	**	ov	b	***	***	***
76	Moore Early	La	Seedling of Concord	J. B. Moore	Mass., 1871	***	***	up	***	***	***	****	r	b	***	*****	***
77	Munch	Li. Ba	Neosho × Herbemont	T. V. Munson	Tex., 1886	****		up	***	****	****	***	r	b	****	**	****
78	Nectar	La. V. Ba	Concord × Delaware	A. J. Caywood	N. Y., 1880	***		up	***	***	***	***	r	b	****	***	***
79	Neva Munson	Li. Ba	Neosho × Herbemont	T. V. Munson	Tex., 1886	*****	*	up	*****	***	*****	***	r	b	****	**	***

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice [5]	Brush		Seeds		Persistence	Resistance to cracking	Flavor [7]	Dessert quality	Lateness of ripening	Apparent region of adaptation [8]	Sugar content	Acidity	Apparent value [9]	
				Length	Color [6]	Number	Size										
56	King [10]	***	p			1–3	*****	****	***	s.a.f	***	**	nc-e-			h.m.d	Large showy variety; quality fairly good.
57	King Philip	*	cl	***	y		****	*****	****	s.ar	****	****	nc-sc	**	**	n	A large excellent quality grape; lacks productiveness.
58	Kiowa	*	p	***	r.g	3–4	***	****	****	s.ar	**	*****	c-sc			n	Lacks size, attractiveness, and productiveness.
59	Kline	**	cl	*	g	2–3	*	*****	***	s.a.sp	***	*****	c-sc			n	No apparent value.
60	Lenoir	**	r	*	r		*	****	****	s.a	**	*****	c-sc	***	*****	w	Widely used for red wine; tender in the North.
61	Little Blue	*		****	g	1–2	***	**	**	s.ar	***	**	nc-sc			n	Tendency to crack and shatter.
62	Livingston	***	r	*	r	2–5	***	****	****	s.ar	***	***	nc-sc			n	Fruit small; production rather poor.
63	Lomanto	**	r	***	r	2–5	**	*****	****	s.ar	***	***	nc-s	*	*****	w	Promising for red wine.
64	Loretto	****	p	**	y	1–3	**	*****	****	s.sp	*	***	nc-sc	**	***	w	Heavy-producing wine type.
65	Louisiana	**	cl	*	r	2–5	*	*****	***	s.ar	***	*****	c-s	*****	**	w	White wine grape; not hardy in the North.
66	Mabel	**	r	*	y.r	1–3	*	**	***	m.s	**	**	nc-c			n	Of no apparent value.
67	Manito	**	p	****	r	2–4	***	****	****	s.a.ar	****	**	nc-c	*	****	h.w	Vigorous; productive; fruit highly aromatic.
68	Marguerite	***	p	**	r	1–3	**	****	***	s.a.sp	**	****	c-s	*****	*****	w	Productive white wine type; subject to diseases.
69	Marion	****	r	***	y	1–5	***	***	**	s.a.sp	**	***	nc-sc			n	Lacks productiveness.
70	Mary Favorite	***	p	***	g	2–5	***	*****	****	s.ar.sp	***	***	nc-sc	****	****	w	Productive; promising for wine.
71	McPike	***		*****	g	1–4	***	**	**	s	***	***	nc-c			n	Very large, but shatters and cracks.
72	Mericadel	**	cl	**	r	3–4	***	****	****	s.sp	****	***	nc-s			w	Promising for trial for wine.
73	Merrimac	***	cl	***	r	2–5	*****	****	*****	s.ar	****	***	nc-sc	***	***	h.d	Good quality; not a heavy producer.
74	Mills	*		*****	r	1–3	***	*****	*****	s.sp.ar	*****	****	nc-sc			h.d	Good quality; vine not very strong.
75	Montefiore	**	p	***	r.g	3–4	****	****	***	s.ar	***	**	nc-sc	***	***	n	Probably good wine type, but lacks productiveness.
76	Moore Early	****	cl	***	r.g	2–4	****	***	***	f.s.ar	**	**	nc-sc	*	***	n	An old standard variety, but others now surpass it.
77	Muench	**	cl	*	r.g	1–3	***	****	****	s.a.ar	***	**	c-s			h	Vigorous; disease resistant; adapted to the South.
78	Nectar	***	cl	***	y	2–4	***	**	****	s.sp	****	***	nc-c	****	***	n	Not equal to Concord; in same season.
79	Neva Munson	**	cl	*	g		***	*****	***	s.ar.sp	*	*****	c-s	*****	*****	w	A vigorous, productive wine variety; too late for the North.

TABLE 3.—*Descriptions of American black grape varieties*—Continued

[Ratings are largely on a comparative basis. Where asterisks (*) are used to indicate relative values, ***** indicates the maximum condition, *** the average, and * the minimum for the particular character indicated]

No.	Variety	Probable species parentage [1]	Varietal parentage	Originator	State and date of origin	Characteristics											
						Vigor of vine	Resistance to spray injury	Stamens [2]	Productiveness	Clusters		Berry			Attractiveness	Skin	
										Size	Compactness	Size	Shape [3]	Color [4]		Thickness	Toughness
80	Nitodal	Ci. La. V. Ba.	Salado × Pense	T. V. Munson	Tex., 1902	*****	*****	up	*****	****	***	***	r.ob	b	****	****	***
81	Norton	A. La		Dr. Norton	Va., 1830	*****	*	up	***	***	****	**	r.ob	b	***	**	*****
82	Norwood	La. V	Concord × Black Hamburg	N. B. White	Mass., 1880	*****	**	re	**	***	**	****	ov.r	b	****	*****	*****
83	Othello [10]	Ri. V. La	Clinton × Black Hamburg	Chas. Arnold	Ontario, 1859	*****		up	***	*****	***	****	ov.r	b	****	**	****
84	Paradox	La. V	Hartford × Iona	J. H. Ricketts	N. Y	*	***	up	***	****	****	***	ov	b	***	**	****
85	Paragon	La		John Burr	Kans	**	***	up	***	***	***	***	r	b	**	***	**
86	Peabody	Ri. La	Seedling of Clinton	J. H. Ricketts	N. Y., 1870	***	**	up	****	****	****	***	ov.r	b	****	**	**
87	Pierce	La. V	Sport of Isabella	J. P. Pierce	Calif., 1882	*	****	up	***	****	***	*****	ov	b	****	***	**
88	President	La. V	Seedling of Herbert	T. V. Munson	Tex., 1900	*****	*****	up	****	***	***	****	r.ob	bl	***	****	****
89	R. W. Munson	Li. La. V	Big Berry × Post Oak	do	Tex., 1886	*****		up	***	****	***	***	r	b	***	**	***
90	Rockwood	La	Seedling of Concord	E. Bull	Mass., 1889	***	*****	up	**	**	***	***	r	bl	***	****	****
91	Secretary	Ri. La. V	Clinton × Muscat Hamburg.	J. H. Ricketts	N. Y., 1867	*	**	up	*	****	**	***	ov	b	****	**	****
92	Sheridan	La. V	Herbert × Worden	N. Y. Expt. Sta	N. Y., 1921	***	*****	up	***	****	***	****	r	bl	****	****	****
93	Suelter	Ri. La	Carver × Concord	Louis Suelter	Minn., 1881	***	**	re	*	*	*	**	r	bl	*	**	***
94	Waddel	La	(21)		Ohio, 1893	*****	***	up	***	***	***	***	ov	b	**	*****	****
95	Wilder	La. V	Carter × Black Hamburg	E. S. Rogers	Mass., 1855	*****	****	re	**	***	***	****	ov.r	b	****	*****	***
96	Wine King	A. Li. Ru	Winona × America	T. V. Munson	Tex., 1898	*****	*****	up	*****	***	***	**	r	b	***	**	****
97	Worden	La	Seedling of Concord	Schuyler Worden	N. Y., 1863	***	***	up	***	****	****	****	r	bl	****	****	****

No.	Variety	Characteristics—Continued														Remarks
		Toughness of flesh	Color of juice [3]	Brush		Seeds		Persistence	Resistance to cracking	Flavor [7]	Dessert quality	Lateness of ripening	Apparent region of adaptation [8]	Sugar content	Acidity	Apparent value [9]	
				Length	Color [6]	Number	Size										
80	Nitodal	**	r	****	r	---	**	****	****	a	*	***	ne-sc	**	*****	w	Very highly pigmented for red wine.
81	Norton	**	r	****	r	2–4	**	*****	****	s.a.sp	***	*****	c-s	*****	*****	w	Widely used for red wine; does not ripen in the North.
82	Norwood	***	p	*****	y	---	*****	****	****	s.ar.sp	****	***	ne-sc	---	---	n	Showy; good quality, but does not set well.
83	Othello [10]	****	p	**	y	1–3	***	*****	****	a.sp	*	****	ne-sc	---	---	n	Of no apparent value.
84	Paradox	***	p	**	r	---	---	****	***	s.ar	****	***	ne-c	---	---	n	Weak vine; quality good.
85	Paragon	**	cl	**	g	2–5	***	**	***	m.f.s	***	***	ne-sc	---	---	n	Weak vine; shatters; cracks.
86	Peabody	***	p	**	r	2–3	**	**	**	s.ar.sp	****	**	ne	***	***	h	Productive; good quality; early; but cracks and shatters.
87	Pierce	**		****	g	1–3	***	****	****	s	**	*****	c	---	---	n	Vine weak; lacks productiveness.
88	President	****	cl	****	r.g	2–3	***	***	****	s.f	***	***	ne-sc	---	---	h.m.d	Vigorous; productive; quality fairly good.
89	R. W. Munson	***	p	---	---	---	---	**	***	s.sp	**	***	c-sc	---	---	n	Not very productive; shatters.
90	Rockwood	****	p	**	r	---	**	***	****	s.f	****	*	ne-se	---	---	n	Vine not strong; crop light.
91	Secretary	*	p	---	---	---	**	****	****	s.ar.sp	*****	***	ne-c	---	---	n	Quality excellent, but vine weak.
92	Sheridan	**	p	---	---	2–4	***	****	*****	s.ar	****	****	ne-se	---	---	h.m.d	A new variety worthy of general testing.
93	Suelter	***	p	**	r	2–3	***	***	***	m.s.a	***	**	n-ne	---	---	n	Lacks productiveness; small; hardy.
94	Waddell	***	p	***	y	2–3	***	****	****	f.s.a	**	***	ne-c	---	---	n	Quality only fair; of no apparent value.
95	Wilder	***	p	****	r.g	1–5	****	***	*****	s.ar.sp	****	****	ne-se	***	***	n	Good quality; attractive; lacks productiveness.
96	Wine King	**	p	**	r	---	***	****	****	a.sp.ar	*	***	c-s	***	*****	w	Productive wine type; worthy of trial.
97	Worden	**	cl	****	g	2–4	**	**	**	s.ar.f	*****	**	ne-se	**	***	h.d	Showy, good quality; shatters and cracks.

[1] La=*V. labrusca*, V=*V. vinifera*, A=*V. aestivalis*, Ri=*V. riparia* (*vulpina*), Ba=*V. bourquiniana*, Li=*V. linsecomii*, Ru=*V. rupestris*, and Ci=*V. champini*.
[2] up=upright, and re=reflex.
[3] r=round, ov=oval, ob=oblate, ov.r=oval to round, and r.ob=round to oblate.
[4] b=black, and bl=blue.
[5] cl=clear, p=pink, and r=red.
[6] g=green, r=red, y=yellow, r.g=red and green, and y.r=yellow and red.
[7] a=acid, ar=aromatic, f=foxy, m=mild, s=sweet, and sp=sprightly.
[8] n=north, ne=north central, c=central, se=south central, and s=south.
[9] h=home, d=dessert, m=market, w=wine, and n=none.
[10] Not fully tested at Arlington Experiment Farm; the information was obtained from other sources.
[11] Grown at Egg Harbor, N. J.
[12] Found by L. B. Langwell.
[13] Introduced by F. F. Marceron.
[14] Found in the woods in Arkansas.
[15] Found by Colonel Scott.
[16] Chance seedling found by Mr. Thorn.
[17] Found on an island in French Creek, Pa.
[18] Introduced by Henry Wallis.
[19] Introduced by W. Prince.
[20] Chance seedling found by J. T. Coffin.
[21] Wild seedling found by T. F. Waddel.

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